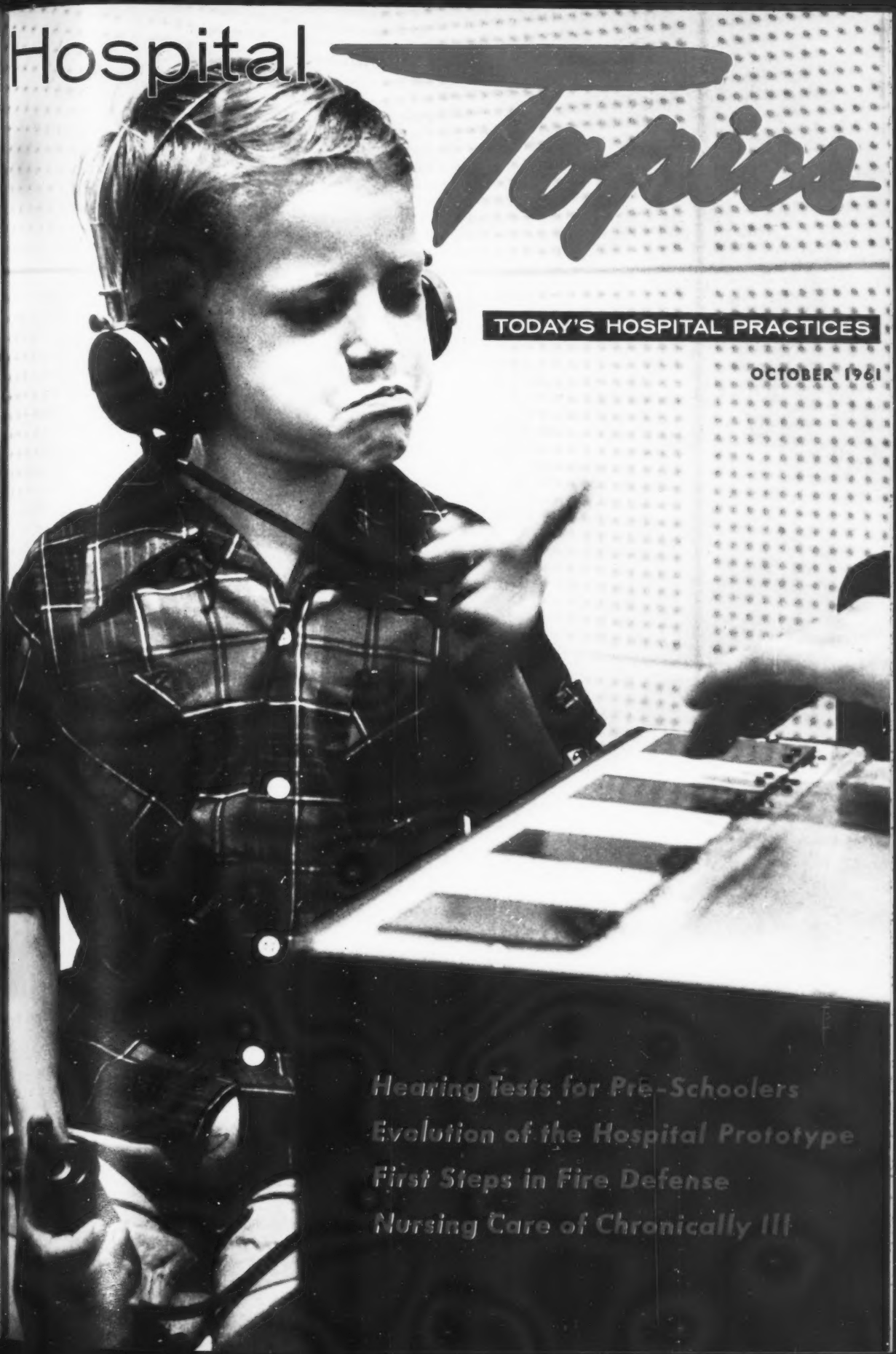
Hospital Topics

TODAY'S HOSPITAL PRACTICES

OCTOBER 1961

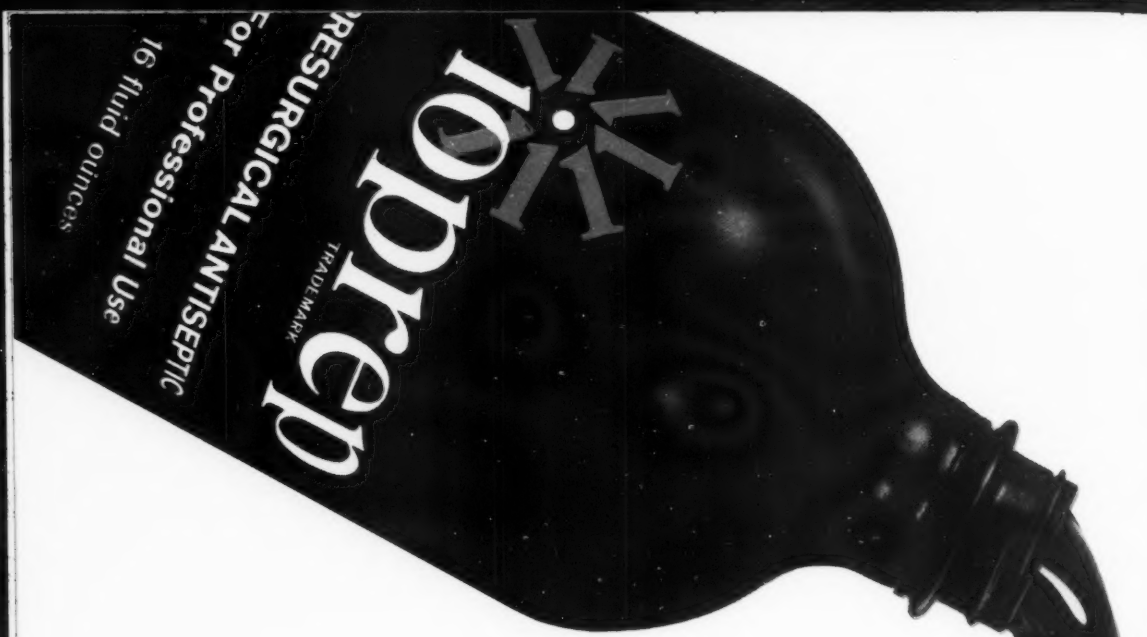


Hearing Tests for Pre-Schoolers

Evolution of the Hospital Prototype

First Steps in Fire Defense

Nursing Care of Chronically Ill



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For further information see postcard opposite page 128.

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HOSPITAL Topics

OCTOBER, 1961, VOL. 39, No. 10

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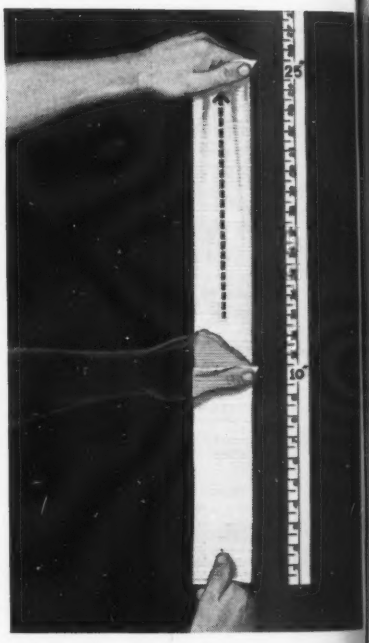

Stretch in the Tensor elastic bandage is carefully engineered to provide a wide range of safe usability. And heat-resistant rubber means long bandage life, despite frequent washing and drying.

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SAFEST FOR BABIES
EASIEST FOR NURSES

Armstrong Isolation Infant Incubator

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EASIEST FOR NURSES BECAUSE —

- quick access is provided through any of four hand-hole openings.
- baby can be placed in either Trendelenburg or Fowler position without opening incubator.
- cleaning and maintenance are simplified — body and ductwork are constructed of stainless steel.
- accessories such as nebulizer, oxygen cylinder holder and intravenous rod are included and conveniently located on unit.

Armstrong Incubators are now manufactured and serviced by

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THIS MONTH IN

HOSPITAL Topics

- Two vital articles on nursing care of the chronically ill appear in TOPICS this month. The first, written by Martha Ball Naylor, divides nursing responsibilities into three distinct groups: the nurse's responsibilities stemming from her direct relationship with medicine, for continuing observation of the patient, and responsibilities associated with the patient's intimate body care. Page 27.

  The second article, by Eleanor E. Drummond, outlines the training given student and graduate nurses at Olive View Hospital, a tuberculosis facility. Page 31.

- Efficiency and function are the first standards to be attained in the construction of a hospital. Yet, many other elements have historically gone into the evolution of the hospital prototype. Religious movements, social movements, philosophical ideas—all these and more have influenced hospital builders as far back as the 13th century. Professor Heinrich Bartman, vice-chancellor of the Technical Academy, Darmstadt, Germany, writes his historical considerations. Page 34.

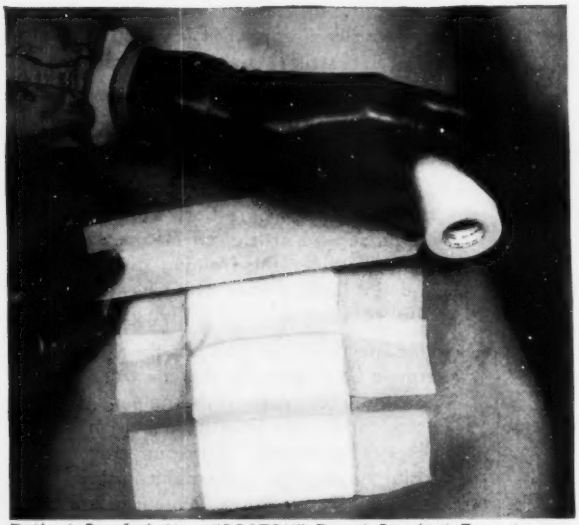
- "All fire programs should be based upon sensible and simple measures of defense." A logical conclusion, it would seem. Yet, according to Robert McGrath, too much time has been spent in massive disaster planning and too little time in learning what to do with the "everyday" problems. Mr. McGrath, a former lieutenant in the Chicago Fire Department and instigator of a course in fire safety for hospital personnel, writes a timely article for October—Fire Prevention Month. Page 44.

- One of the most effective ways to check on the accuracy of a laboratory test is to have the test made again—by another technician. The only thing the same in both tests might well be the patient's serum. This two-procedure check is especially valuable when two different approaches are used. Dr. E. E. Myers concludes his Accuracy in the Laboratory series with "Types of Controls." Page 63.

- The engrossed lad on TOPICS' cover this month is having his hearing tested via the "Pediacoumeter," developed by a young Texas audiologist. Dr. Haug's adaptation of the audiometer has largely overcome the difficulty inherent in testing the preschool child unable to verbalize.

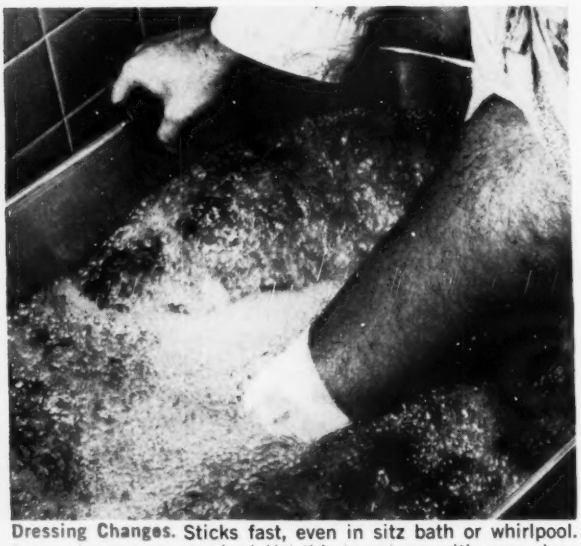
  Our thanks to LIFE Magazine for permission to use staff photographer Don Dominis' arresting cover shot and illustrations accompanying the article on page 67.

TOTALLY NEW SURGICAL ADHESIVE TAPE ANSWERS TRADITIONAL TAPE PROBLEMS

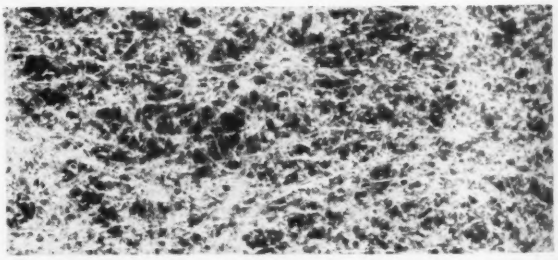


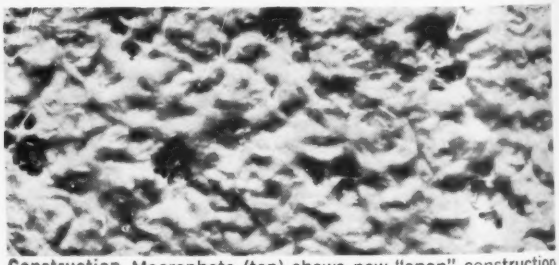
Patient Comfort. New "SCOTCH" Brand Surgical Tape is non-occlusive and physiologically inert. Prevents usual maceration . . . virtually eliminates chemical irritation, even in markedly tape-sensitive patients. It is cool, lightweight.[1]

Removal. Tissue-thin copolymer adhesive layer of "SCOTCH" Surgical Tape clings firmly to skin, yet does not entrap hairs. Tape comes off quickly and easily without depilation. Leaves no dirty residue for time-consuming "clean-up."[1]



Dressing Changes. Sticks fast, even in sitz bath or whirlpool. Fewer changes are required. Yet this tape tears with ease; does not tend to stick to rubber gloves or instruments.[1] There is no shelf deterioration, no "end-of-roll" waste.





Construction. Macrophoto (top) shows new "open" construction of "SCOTCH" Surgical Tape that allows free air passage through **microporous** backing and adhesive. Perforated tape (bottom) is almost totally occluded by thick, potentially irritating mass.[1]

"SCOTCH" Brand Surgical Tape is available through your surgical supply dealer in usual widths, ½ to 3 in., 10-yd. rolls.

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SCOTCH BRAND SURGICAL TAPE MICROPOROUS

No. 530

Application. Unlike conventional adhesive tapes, "SCOTCH" Surgical Tape does not slip or "creep," and ordinarily should be laid on without tension. Where tension is desired or anticipated, shear stress on the skin may be prevented by cross strips of "SCOTCH" Surgical Tape at the ends of primary application.

MINNESOTA MINING AND MANUFACTURING COMPANY
...WHERE RESEARCH IS THE KEY TO TOMORROW

1. Golden, T., A Non-Irritating, Multipurpose Surgical Adhesive Tape, Am. J. Surg. 100: 789,1960.

"SCOTCH" is a registered trademark of 3M Co. ©3M Co., 1961

HOSPITAL Topics

VOL. 39, NO. 10
OCTOBER, 1961

Scanning the News

Future Generations of Gullivers?

At the rate the average height and size of persons born so far during this century have been increasing, future generations are likely to be giants.

A comparison of the heights and weights of children born at the beginning of the century and those of present-day children shows that today's youngsters are several centimeters taller and several kilograms heavier.

Dr. Martin du Pan, reporting on a survey conducted among Swiss children, states that the increase in growth has become more noticeable in the last 20 years.

Although nutrition played an important role in this increase in the earlier years of the century, it is no longer a prime factor.

The ascending line in the weight and height curves gives no indication of leveling off.

Reducing Pills May Cut Weight, Enhance . . Mental Stress

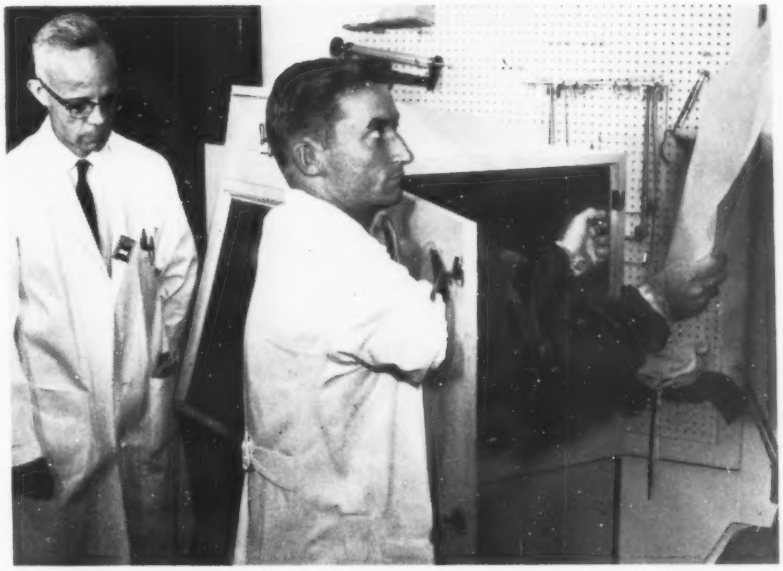
Reducing pills may cut some avoirdupois, but their use could lead to severe emotional illness, according to Milton A. Dushkin, M.D., Winnetka, Ill.

After several months of extensive research, and personal care and treatment of cases of psychoses caused by amphetamine drugs, Dr. Dushkin warns of the need for extreme caution in using these preparations.

Among his findings were reports by European psychiatrists of an increasing number of cases where severe psychoses were erroneously diagnosed as schizophrenic reactions. The true culprit? Diet pills of type used mainly by overweight Americans.

Adding that use of the drugs can "irreparably affect the minds of emotionally high strung persons," he cautions that excessive eating must in itself be considered a manifestation of an emotional disturbance. Many overweight persons require psychiatric, not medical, help.

Case histories and research now conclusively disclose that there is a danger to health in being overweight, but according to Dr. Dushkin, "the wrong method to cut the avoirdupois can be a short cut to disaster."



A mobile x-ray developing unit, termed the "Develmobile" by its chief architect, technician Richard Brown, is in clinical use at the University of Texas Medical Branch, Galveston. The unit is about the size of a home refrigerator, weighs 80 pounds, and costs about $300 to construct. When developing films, the technician handles the x-ray plates through the light-proof sleeves. Using high-speed developing materials, negatives are developed in 20 seconds and wet negatives are ready for on-the-spot viewing by the physician in less than 90 seconds. At left Robert N. Cooley, M.D., professor of radiology, examines a finished film in the built-in viewer, while Mr. Brown demonstrates how the technician reaches into the darkened compartment to process film.

Chemical Brain Creates Viruses

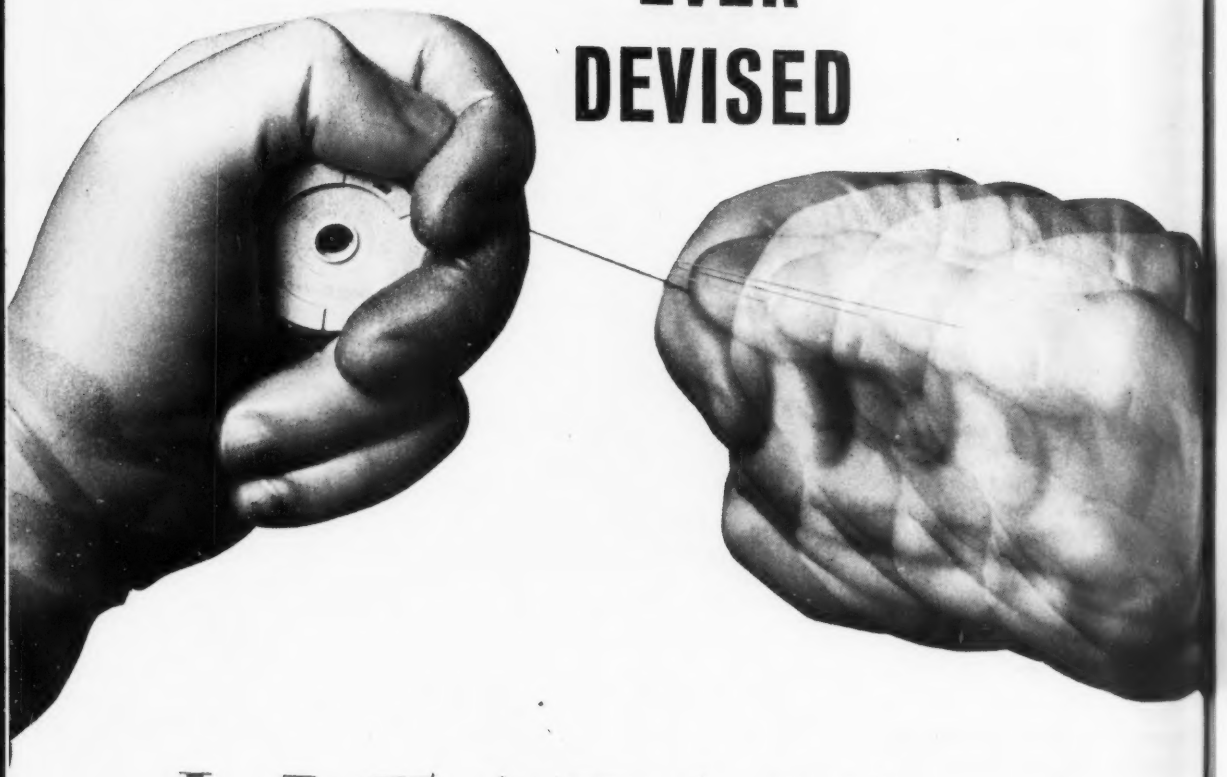
University of Chicago scientists report that they have successfully transplanted a virus' chemical "brain" to a host cell, where the "brain" forced other chemicals to manufacture the same kind of virus.

The brain is pure deoxyribonucleic acid (DNA), the genetic material in cells and viruses that controls heredity. The DNA was taken from a virus known as Lambda and introduced into a host cell where it reproduced exact copies of the original intact Lambda virus.

The Lambda virus normally languishes inside intestinal bacteria of man. In this inactive state, it is classed as a provirus. In the research, the bacteria was placed under ultra-violet light. This stimulated the proviruses into activity, and within an hour and a half each particle produced hundreds of active virus particles.

(Continued on page 78)

THE EASIEST-HANDLING LIGATURE REEL EVER DEVISED



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News Briefs at Press Time

COMMUNITY FACILITIES BILL APPROVED BY CONGRESS

Community health facilities bill, approved by Congress September 20, represents "one of the most important advances in the history of federal health legislation," according to HEW Secretary Ribicoff. "Full use of the opportunities afforded by this new law," he declared, "can result in substantial improvements in the qualtiy of care given to the nation's chronically ill and aged."

New law authorizes additional grants in aid to states to build up health services for chronically ill, and provides for special grants to enable communities to test various types of coordinated home-care programs. It also authorizes more funds for nursing-home construction, for experimental research in the construction and operation of hospitals, and for assistance in the construction of health-research facilities. Another provision liberalizes terms for obtaining federal aid for the construction of rehabilitation centers.

In order to put the new program into effect this fiscal year, a supplemental budget was submitted to Congress, which was expected to pass a new appropriations bill before adjourning. Budget requested includes:

—An additional $4 million for grants to states, which would make total of $6 million earmarked this year for health programs for chronically ill and aged.

—$3 million to be awarded to community health agencies to conduct studies of new types of service programs for aged and chronically ill.

—An additional $9 million for nursing-home construction (present budget already has $10 million).

New law extends health-research facility construction program until June, 1965, and raises ceiling for such aid from $30 million to $50 million a year.

RECORD AMOUNT FOR RESEARCH IN HEW APPROPRIATIONS BILL

A record allocation for support of medical research is included in Department of HEW appropriations bill, approved by Congress and sent to White House for signature. There is total of $738,335,000 for National Institutes of Health.

Hill-Burton program is slated for $203 million. An extra $10 million is provided, subject to fulfillment of certain conditions, to help in financing experimental hospital construction (substantial portion is expected to go for subsidizing pilot project at Mayo Clinic). Another $30 million is allowed in matching funds to stimulate construction of medical research facilities.

TEXAS HOSPITALS WEATHER HURRICANE WITH MINOR DAMAGE

Texas hospitals in the path of hurricane Carla put disaster plans quickly into effect and came through the storm with relatively minor damage, the Texas Hospital Association reports. Serveral hospitals reported broken windows, water damage, and up to one foot of mud in the basement, but no patient casualties.

The Community Hospital of Brazosport, in Freeport, evacuated all patients, as did the Calhoun Memorial Hospital, Port Lavaca. Other hospitals moved patients to safer areas within their buildings, but found evacuation unnecessary.

Hospitals in Galveston suffered from wind and water damage, primarily flooded basements. A serious drawback was the lack of utilities, particularly suitable water for sanitary and drinking purposes. As late as September 15, the University of Texas Medical Branch Hospitals reported they were still operating partially on emergency power, and water service was available to only four of the nine floors of the John Sealy Hospital.

Hospitals sheltered many non-patients—refugees of the storm. Administrators had high praise for medical staff and hospital personnel for the services they rendered.

SCHOOLS EAGER TO PARTICIPATE IN $25 MILLION RESEARCH AID PROGRAM

Majority of schools of medicine, dentistry, osteopathy, and public health have indicated wish to participate in the General Research Support Grants program, which provide for institutional grants with practically no strings attached. Deadline for returning application forms was October 1.

More than $25 million will be available for distribution in current fiscal year under program, authorized by Congress last fall.

Money may be used for salaries, maintenance of plant, equipment, or almost anything else except costs of construction and renovation. Allocations will be determined by a formula which takes into consideration size of other U.S. aid and total of health-related research spending.

Grant recipients will get an additional 15 percent for coverage of overhead expenses.

Next year National Institutes of Health plan to bring schools of nursing and pharmacy and certain other professional schools into the program, along with hospitals and other nonprofit institutions.

EXPANSION OF PHS ACTIVITY RECOMMENDED BY ADVISORY COUNCIL . . .

PHS has been advised by its National Advisory Health Council to broaden its scope of activity.

Major recommendations included: initiation of research, training, and demonstrations in organization, administration, and financing of medical care; use of bold measures to recruit and train personnel for health professionals; increased attention to improvement of hospitals, group clinics, and other service facilities.

Report was prepared by study committee headed by Lowell T. Coggeshall, M. D., University of Chicago.

Gordon W. Marshall

Calendar of Meetings

OCTOBER

2- 4 AHA Institute, Hospital Laundry Management and Operation, Lord Baltimore Hotel, Baltimore

2- 5 American Academy of Pediatrics, Palmer House, Chicago

2- 6 American College of Surgeons, Clinical Congress, Conrad Hilton, Chicago

2- 6 American Nursing Home Association, Pick-Carter Hotel, Cleveland

3 American Association of Poison Control Centers, Palmer House, Chicago

5- 6 Saskatchewan Hospital Association, Hotel Saskatchewan, Regina

8-13 American Academy of Ophthalmology and Otolaryngology, Palmer House, Chicago

9-12 American Association of Medical Record Librarians, Benjamin Franklin Hotel, Philadelphia

9-13 AHA Institute, Nursing Service Administration, AHA Headquarters, Chicago

10 Hospital Association of Rhode Island, Sheraton Biltmore Hotel, Providence

10-12 Associated Hospitals of Alberta, Hotel Palliser, Calgary

11-12 American College of Obstetricians & Gynecologists, Conference on obstetrical, gynecologic and neonatal nursing, Penn-Sheraton Hotel, Pittsburgh

11-12 Utah State Hospital Association, Salt Lake City

11-12 Vermont Hospital Association, Vermont Hotel, Burlington

11-13 AHA Institute, Hospital Safety and Insurance, Adolphus Hotel, Dallas

11-13 Missouri Hospital Association, Sheraton-Jefferson Hotel, St. Louis

12 Association of Delaware Hospitals, Dover

12-13 Nebraska Hospital Association, Cornhusker Hotel, Lincoln

15-20 Fourth International Congress on Allergology, Commodore Hotel, New York

16-17 Idaho Hospital Association, Elks Lodge, Boise

16-17 National Council on the Aging, New York City

16-18 AHA Institute, Management Development, AHA Headquarters, Chicago

16-19 AHA Institute, Staffing Department of Nursing, Sheraton Hotel, Philadelphia

16-19 American Dental Association, Sheraton Hotel and Convention Hall, Philadelphia

16-19 13th Mental Hospitals Institute, Sheraton-Fontenelle Hotel, Omaha

17-18 South Dakota Hospital Association, Sheraton-Cataract Hotel, Sioux Falls

17-19 British Columbia Hospital Association, Hotel Vancouver, Vancouver

(*Continued on page 14*)

NO. 43 IN A SERIES

MISS PHOEBE

"What's the matter, young man—haven't you ever seen an Everest & Jennings *folding* wheel chair?"

Elevating legrest model has 8" casters balance-positioned to compensate for weight of casts.

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HIGHER CAPACITY... Sterilizers may be loaded to full capacity . . . an increase of about 25% for *every existing dry goods sterilizer.*

HIGHER SPEED... Typical dry goods cycle is just 15-20 minutes from start to finish. Compare this with the 60-to-120 minute cycles now in use.

FITS UNITS NOW IN USE... Exclusive console design permits conversion of most existing field sterilizers . . . protects your investment by extending the usefulness of present equipment.

HIGHER TEMPERATURE... Fast-killing temperatures up to 275° F. can be used routinely for fabric sterilization, with less deterioration than by conventional methods.

LONGER LIFE... Shorter exposure to higher temperatures means that sterilized goods last longer... you save on replacement costs.

WIDER APPLICATION... Air evacuation is so efficient, the cycle so shortened, that it now becomes routine procedure to process many items formerly difficult or impossible to sterilize in steam.

POST-VACUUM DRYING... Vacuum evacuates all steam and condensate at cycle's end. Load is completely dry, cool, and safe from contamination... *before* sterilizer door is opened.

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CALENDAR OF MEETINGS

(*Continued from page 12*)

19-20 Arizona Hospital Association, Ramada Inn, Phoenix

19-21 West Virginia Hospital Association, Morgan Hotel, Morgantown

20-21 Association of Operating Room Nurses, Regional Institute, Shamrock-Hilton, Houston

20-24 American Heart Association, Bal Harbour, Miami Beach

22-24 Oregon Hospital Association, Eugene Hotel, Eugene

22-25 American College of Gastroenterology, Hotel Cleveland, Cleveland

22-25 Colorado Hospital Association, Harvest House, Boulder

22-27 American Society of Anesthesiologists, Statler Hilton Hotel, Los Angeles

23-25 Ontario Hospital Association, Royal York Hotel, Toronto.

23-24 American Cancer Society, Biltmore Hotel, New York City

23-27 California Hospital Association, El Cortez Hotel, San Diego

24-25 North Dakota Hospital Association, Jamestown

24-27 American Dietetic Association, Sheraton-Jefferson Hotel, St. Louis

25-28 American Association of Blood Banks, Drake Hotel, Chicago

26-27 Washington State Hospital Association, Chinook Hotel, Yakima

26-27 American College of Obstetricians & Gynecologists, Conference on obstetrical, gynecologic and neonatal nursing, Pick-Congress Hotel, Chicago

27-28 Nevada Hospital Association, Pershing General Hospital, Lovelock

NOVEMBER

1- 3 Indiana Hospital Association, French Lick Hotel, French Lick

2- 3 Oklahoma Hospital Association, Mayo Hotel, Tulsa

2- 4 AHA Institute, Hospital Directors of Medical Education, AHA Headquarters, Chicago

5- 8 Association of Military Surgeons, Mayflower Hotel, Washington, D.C.

6- 8 American Occupational Therapy Association, Sheraton - Cadillac Hotel, Detroit

6-10 AHA Institute, Physical Therapists, Deauville Hotel, Miami Beach

6-10 AHA Institute, Hospital Pharmacy (Specialized), AHA Headquarters, Chicago

8-10 Maryland-D.C.-Delaware Hospital Association, Shoreham Hotel, Washington, D.C.

9-10 Kansas Hospital Association, Baker Hotel, Hutchinson

9-10 Minnesota Hospital Association, Leamington Hotel, Minneapolis

9-10 Virginia Hospital Association, John Marshall Hotel, Richmond

9-11 American Academy for Cerebral Palsy, Chase and Park Plaza Hotels, St. Louis

13-15 Association of American Medical

(*Continued on page 16*)

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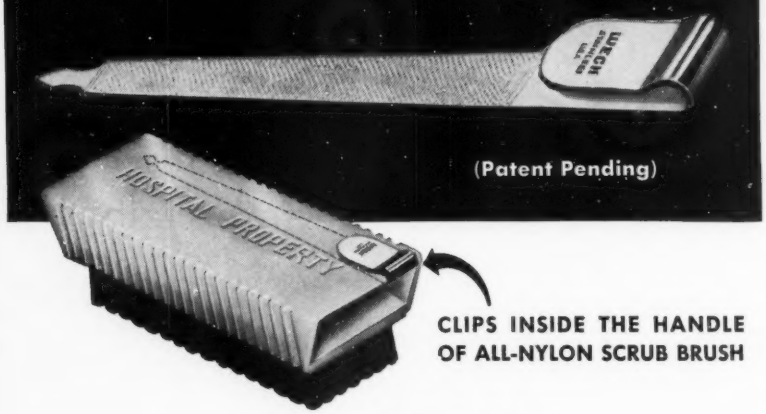

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CALENDAR OF MEETINGS

(Continued from page 14)

Colleges, Queen Elizabeth Hotel, Montreal, Quebec

13-17 American Public Health Association, Cobo Hall, Detroit

13-17 AHA Institute, Hospital Housekeeping (Advanced), AHA Headquarters, Chicago

13-17 AHA Institute, Dietary Department Administration, Somerset Hotel, Boston

14-16 AHA Institute, Directors of Hospital Volunteers (Basic), Cosmopolitan Hotel, Denver

16-18 American College of Obstetricians & Gynecologists, Conference on obstetrical, gynecologic and neonatal nursing, Kentucky Hotel, Louisville

17-21 National Society for Crippled Children and Adults, Denver-Hilton Hotel, Denver,

25-27 American College of Chest Physicians, Brown-Palace Hotel, Denver

26-Dec. 1 Radiological Society of North America, Palmer House, Chicago

27-30 AHA Institute, Operating Room Administration (Advanced), Sheraton-Lincoln Hotel, Indianapolis

27-30 American Medical Association, Clinical Meeting, Denver

28-30 AHA Institute, Hospital Dental Service (Advanced), AHA Headquarters, Chicago

30-Dec. 1 Illinois Hospital Association, St. Nicholas Hotel, Springfield

DECEMBER

2- 7 American Academy of Dermatology and Syphilology, Palmer House, Chicago

3- 6 American Association of Hospital Accountants, Regional Institute on Hospital Accounting and Finances, Hotel Kenmore, Boston

11-15 AHA Institute, Hospital Design and Construction, Statler-Hilton, Los Angeles

13-15 AHA Institute, Medical Record Librarian's Institute on Medical-Legal-Principles of Medical Record Administration (Advanced), AHA Headquarters, Chicago

26-31 American Association for Advancement of Science, Denver-Hilton Hotel, Denver

JANUARY

17-19 Alabama Hospital Association, Admiral Semmes Hotel, Mobile

26 South Carolina Hospital Association, Wade Hampton Hotel, Columbia

27-Feb. 1 American Academy of Orthopaedic Surgeons, Palmer House, Chicago

29-Feb. 1 American College of Surgeons, Sectional Meeting for Doctors and Graduate Nurses, Statler-Hilton and Biltmore Hotels, Los Angeles

FEBRUARY

1- 3 American College of Hospital Administrators, Congress on Administration, Morrison Hotel, Chicago

7- 9 American Academy of Occupational Medicine, Pittsburgh-Hilton Hotel, Pittsburgh

19-21 Association of Operating Room Nurses, Annual Congress, Denver-Hilton Hotel, Denver

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HOSPITAL Digest SECTION

Program of Hospitals and Nursing Home Provides Better Care

By Kenneth S. Nelson, Jr.*

Condensed from Professional Nursing Home, *August 1961*

The problem of providing the patient with the care he needs at the price he can pay is being explored in Anniston, Ala., through a new type of hospital-nursing home relationship.

Anniston, like other cities, has felt the impact of inflation over the past few years. Serving the city's 37,000 residents and 60,000 rural population are three medical-care facilities: a 160-bed city-owned general hospital; a 30-bed non-profit chronic disease hospital; and a 48-bed proprietary nursing home.

The cost of medical care in these facilities has been driven higher and higher by rising wages and prices, until it became evident to the administrators of Anniston's medical facilities that if costs were to be kept down service would have to be curtailed. Desiring this only as a last resort, the administrators met on an informal basis to discuss their problems.

How to obtain competent and skilled technical help at a price these institutions could afford emerged as the major problem in keeping costs down. While the chronic-disease hospital and the nursing home felt a need for specialists' services in such areas as food service, nursing service, pharmacy, they could not afford it on a full-time basis. And the general hospital, who had such specialists on its staff, was faced with the rising cost of their salaries.

This problem, it is hoped, will be solved by a plan which will make the services of the city hospital's specialists available to the other two facilities on a consulting basis, with the cost of the service charged to the facility receiving it. The nursing home and chronic-disease hospital will benefit by the specialists' service, and the city hospital will receive the additional funds it needs to defray the costs of the specialists' salaries. The patient should benefit through both an increase in service and a decrease in cost of care.

Another area of cooperative approach will be staff education and training. To avoid three separate costly—and limited—inservice training programs, a single course is being set up for the aides, orderlies, and similar employees of all three institutions.

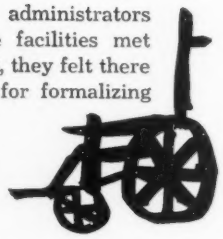
Since referral of patients among the facilities will be a logical outcome of the closer relationship in medical-care and training programs, the administrators began to standardize certain procedures and records. A standard referral form—containing the usual information on the patient's physical, emotional, and mental condition, and on his course of treatment—was developed in conjunction with the medical staffs and the supervising nurse of all three institutions. It is used both to effect transfers between facilities and for requesting services.

Standardization was also necessary to facilitate consultations between the institutions. So another form was developed in which the facility requesting consultation fills out the first half, and the consultant giving the assistance fills out the second. This form is designed to serve both as a charge slip and a report of the consultation.

(Continued on next page)

*Consultant with Nursing Home Services Section, U.S. Public Health Service.

After the administrators of the three facilities met several times, they felt there was a need for formalizing the agreements they had reached and for appointing an advisory body to oversee the whole program and lend impartiality to the affiliation.



With these aims in mind, a one-year contract was drawn up, signed by both the owners and the administrators of the institutions so that the contract will not be jeopardized by changes in personnel. The contract provides for the formation of two advisory groups: the "Anniston Affiliated Medical-Care Project Advisory Board," and an executive committee of this board.

The advisory board serves as the overall guiding body for the project. It is composed of the administrators and chiefs-of-staff (or similar medical representation) from the three facilities, representatives from city and county government and health and welfare departments, as well as a representative from local industry.

The routine operations of the project are reviewed on a monthly basis by the executive committee, which is composed of the three administrators.

The project in Anniston has been operating less than a year, but its operations to date have far exceeded original expectations. The first three months' reports show that there have been a total of four consultations to the chronic-disease hospital and four to the nursing home. It is the consensus of the cooperating parties that these consultations have already resulted in improved dietary standards and better patient nutrition.

Significant achievements have also been made in providing better protection of the patient in the event of fire or other disaster, through the establishment of coordinated planning, utilization of community resources, and training of personnel.

During the short period the project has been in operation, 15 referrals have taken place. Of the eight from the city hospital for continued nursing care, fifty percent have already been discharged to their own homes. (The remaining seven referrals were to the city hospital for surgery and diagnosis.)

The continuous medical care encouraged by such a referral system could produce several long-term benefits to patients and institutions: to institutions by the availability of more hospital beds, reduction of hospital stay, and a more efficient utilization of hospital services; and to the patient by receiving more and better continuous medical care, more rapid recovery and physical restoration, and a greater opportunity to return to community life.

While many communities may feel that the degree of affiliation achieved in Anniston is not precisely what is needed or is even practical for their purposes, the basic principles of understanding, mutual respect, and co-operation can be applied everywhere. The mere fact that a publicly-owned facility, a non-profit facility, and a proprietary facility were able to cooperate and develop a workable plan for interrelationship shows that such affiliation is a realistic goal that can be achieved.

What Kind of Boss Are You?

By Arthur R. Pell*

Condensed from Purchasing, *July 17, 1961*

A manager with the best technical competence will fail in his job if he cannot get work done through other people. He must know how to reach his staff, obtain its respect and cooperation, and create an *esprit de corps* among the people.

It is essential to know what people want from their jobs. To say, "their salaries," is short-changing the human spirit. Of course, we work to live, but we hope to get a good deal more out of our jobs than just our wages.

In fact, psychologists have shown that there are five basic motivating factors in a man's relationship to his job.

1. Recognition as an individual. A boss who thinks of his people as cogs in a machine misses this key factor of human relations. A good supervisor gets to know all his employees individually—how they act and react, what appeals to them, and what annoys them.

2. Pride in work. It is the manager's responsibility to instill in the people of his department a pride and a feeling that their jobs are important.

3. Sense of belonging. Men are happier and consequently more efficient and cooperative when they feel part of a group—especially a successful and effective group. Good managers build team spirit, and for this there must be a feeling of job security also.

4. Fair treatment. This involves establishing policies and rules which are reasonable and which cover most routine problems; the communication of these policies to all concerned (one cannot expect compliance from uninformed people); and the fair and impartial application of these rules to all employees.

5. Chance to express ideas. Sometimes subordinates' ideas are impractical, but it is always wise to listen to them, to consider and

*Vice-president, Harper Associates.

discuss them. Some supervisors inadvertently erect a barrier between themselves and their staff so that subordinates are afraid to approach them. The department head may not realize this. But if people rarely come to you with their problems, it does not mean there are none. It is more likely that employees do not feel free to discuss them.

There are two general areas of failure in supervision—one is the supervisor who is too easy-going; the other is the hard-boiled boss.

The easy-going type's basic fault is his desire to please everybody. Minor errors of subordinates are overlooked; more important faults are not called to their attention. When a reprimand is necessary, it is frequently put off until the reason for it is forgotten. If it finally is administered, it is done so weakly that it is ineffective. Praise, however, is so common that it loses significance.

The result? The department's work becomes sloppy. Discipline is poor. Morale is low. The supervisor's employees walk all over him.

Basically, this can be traced to a deep-rooted feeling of insecurity in the supervisor's own ability. He wants to be popular, and leniency with subordinates, he believes, will engender employee approval.

However, security is based on confidence and know-how, and can be built by increasing confidence in knowledge of the job and, more important, knowledge of people. A good leader has the "feel" of handling his staff. He realizes that if he deals fairly with everyone he can be a good leader and still maintain respect. As long as he is fair, his employees will stand by him, no matter what action he takes to maintain discipline and keep the department running smoothly.

In contrast, the attitude of the whip-cracker, tough boss is abrupt and dogmatic: "I am the boss. They get paid to work and they'd better work or else."

Tough supervisors cause a good deal of resentment among subordinates. Their tactless and loose use of reprimands (usually in public), raucous commands, and lack of consideration for employee's feelings cause undesirable reactions among the rank-and-file. Either consciously or subconsciously employees refuse to cooperate. Lower production, higher turnover, more absenteeism, numerous grievances, and generally poor morale are the usual evidences of such a lack of cooperation.

Again, the cause of this type of approach is insecurity. However, the desire-to-please attitude of the easy boss is replaced by a gruff manner and authoritarian veneer.

Again, the solution requires a knowledge of human relations.

The best supervisor is obviously somewhere between these extremes. He is a man who gets the best out of his people, because he understands their needs.

One of these needs is recognition and praise. Good supervisors give credit when and where it is due, are specific about the reason for praise, are sincere, and don't overdo praise but reserve it for really good work.

On the other hand, reprimanding a subordinate is probably the most disagreeable part of any manager's job. Yet a reprimand that is handled properly can be effective without incurring resentment. A reprimand should be timed as close as possible to its cause. Privacy is essential.

Begin the reprimand with a question, but do not accuse. Take nothing for granted. Give the man a chance to tell his story. Listen! Attentive, patient, open-minded listening, free from self-consciousness and condescension, is the greatest single factor in successful handling of reprimands. Give constructive criticism and be as specific as possible.

Good leadership can be learned and built. It will result in greater efficiency and produce a smoother, happier, more cooperative relationship with the people on whom you depend.

By Peggy Cameron King

Be It Agreed

. . . suggestions of an impatient inpatient

Reprinted from Current Medical Digest, *June 1961*

May I suggest that the following changes in hospital procedure would do much to hasten recovery of the patient (me):

1. The garment provided for the patient shall be of a discreet length and have all its ties.

2. The patient is to be warned of the approach of:

a. a bevy of students.

b. his pastor.

c. an enema.

3. The patient is not to be left for more than 20 minutes:

a. with a thermometer in his mouth.

b. straddling a bedpan.

c. alone with a social worker.

4. Visitors are to be screened and warned not to discuss:

a. what the patient's hospital insurance won't cover.

b. how the patient's spouse is carrying on.

c. how the visitor went through the same thing, only worse.

In return I, the patient, do agree:

1. To keep mum about how I helped with the diagnosis.

2. Inasmuch as lies within my power, to give laboratory technicians any free samples that are requested.

3. To do as requested, except when the request is unreasonable.

HOSPITALS AND THE PUBLIC INTEREST

Condensed from Public Health Reports, *May 1961*

By Max Shain, M.P.H.,

and

Milton I. Roemer, M.D.*

Hospitals in the United States are subject to various forms of supervision by public agencies. Fundamentally, the basis of this public interest lies in the obligation of the community to protect the health of its members. Through a long tradition of political experience and legal precedent, some (though not all) of this governmental obligation is embodied in constitutions—the "general welfare" clause of the U.S. Constitution has been repeatedly interpreted to include the power to safeguard the public health.

Power in U. S. health affairs, however, rests essentially with the state governments, and the states are amply endowed legally to support this public concern. They possess what is called juridically "police power," permitting their governments to protect the health, welfare, safety, and morals of their citizens.

Hospitals derive from the state certain special privileges. At the same time, the state imposes certain obligations on them. Generally, hospitals are incorporated bodies, chartered by the state. Directors are substantially relieved of individual responsibility for the wrongdoing of the corporation; instead, the legally created corporate "person" is responsible and liable only to the extent of its collective assets. Considering the possibilities of negligence, harmful acts, and malpractice suits, this limited liability is obviously of great importance.

Because of their usually charitable and non-profit character, except for the handful of proprietary institutions, hospitals enjoy tax exemptions of many sorts. Moreover, hospitals may receive gifts from donors who are thereby able to reduce their net incomes for tax purposes.

Hospitals may receive substantial grants of public money for construction purposes. About one-third of the hospitals in the U. S. are fully owned by units of government, predominantly state and local and were built entirely with government tax funds. Beyond this, voluntary hospitals have received governmental construction grants since the earliest days of the republic. And since 1946, of course, the Hill-Burton program has provided substantial federal money to assist voluntary and public hospital construction. Such contributions of public funds entail public responsibility for overseeing how the money is spent.

Governmental units purchase services from hospitals on behalf of certain legal beneficiaries. The largest share of these are indigent persons receiving public assistance from state or local governments. In addition, many states assume responsibility for hospital services to selected persons who are medically indigent. Then there are a variety of other beneficiaries of governmental programs who are ordinarily, or occasionally, treated in community hospitals. The content of care given to all these beneficiaries is a matter of public concern.

Still another foundation of public interest in hospitals is their provision of a locale for the work of several licensed health professions. The very concentration of these personnel under one roof would seem to place a special responsibility on government regarding the technical standards of the environment provided.

The hospital is also an educational institution. Insofar as supervision of education is widely considered a public responsibility in our society, the hospital is partly a school requiring such supervision.

The hospital, furthermore, is an employer of men and women, subject accordingly to the labor laws of the land. Conditions of work in hospitals are obviously matters of public interest.

*Mr. Shain is assistant professor of hospital administration, and Dr. Roemer is associate professor of administrative medicine, Sloan Institute of Hospital Administration, Graduate School of Business and Public Administration, Cornell University, Ithaca, N. Y.

Finally, there is the question of hospital operating costs. In recent years, public concern about this has become an overriding issue. Not only has there been widespread popular reaction to the sharp rises in hospital costs, but the channel of expression of this reaction has been widened through a separate but closely related social movement: hospital insurance. The Blue Cross plans inevitably reflect hospital costs in their premium charges to subscribers. Obviously, the people have a right to know how their insurance money is being used by hospitals; if there is inefficiency or extravagance, they have a proper concern in eliminating it.

These, then, are the principal reasons for a public interest in hospitals. Perhaps it epitomizes the situation to say that hospitals are essentially public utilities. They are so important to the survival of the community that they have been granted many special and statutory rights. At the same time, their actions may lead to good or poor consequences for the people.

Voluntary Safeguards

Consciousness of public interest is responsible, at least in part, for the conventional pattern of a board of directors as the top authority of each general hospital. Theoretically, the hospital board is a kind of built-in protector of the public interest. In practice, however, the democratic ideal is rarely attained anywhere. Hospital boards may be composed of highly intelligent and responsible persons, but they come predominantly from business and professional groups. Their sensitivity to the needs of humble people may be limited, and their willingness to take particular actions may be strongly influenced by their personal views, which may or may not coincide with maximum protection of the public interest.

Yet every decision that a hospital board or its administrator makes is laden with public interest. The overall effect of these decisions is manifestly of great public concern.

To provide general surveillance over hospitals, a number of national non-governmental associations have taken action, and in 1952 an overall system of hospital accreditation was organized by a joint commission made up of representatives of the American College of Physicians, American College of Surgeons, American Hospital Association, American Medical Association, and the Canadian Medical Association.

Although this commission has doubtlessly had a major effect in upgrading hospital performance—and the prestige of accreditation has come to be regarded as an essential asset in a hospital's public relations—the shortcomings of these voluntary bodies must be recognized:

—They are voluntary, and no hospital need even apply for their approval; indeed, some of the marginal institutions, in greatest need of improvement, avoid the whole process.

—The commission has a policy of examining only hospitals of 25 beds or more. Yet 800 hospitals in the U. S. are smaller than this, and these institutions may present the thorniest problems.

—These professional societies and commissions are, of course, independent and responsible only to themselves. While their integrity may be beyond question, they do not unfailingly reflect the public interest. Indeed, their viewpoint is sometimes parochial.

In light of all this, there remains a need for public supervision of hospitals. Only through governmental agencies—which are ultimately acountable to the citizenry—can the public interest in hospitals be exercised and protected.

Role of Government

The principal means by which governmental agencies have come to protect the public interest is through licensing by state authorities. The adoption of such state statutes represents a forceful exercise of the police power of the state. It grants to the public authority the power to determine the precise conditions under which a hospital shall be operated.

With such sweeping powers at their disposal, state agencies are faced with many delicate questions about the scope and content of the regulations they adopt.

The older state hospital regulations tended to construe their authority narrowly, concentrating primarily on the physical plant. The newer regulations are concerned with much broader aspects of hospital organization, including the functions of a governing board and administrator, of the medical staff organization, of detailed clinical records, and so on. In short, the scope of the hospital licensure regulations in most states today is broad enough to determine whether the hospital is built, organized, equipped, and staffed in a manner adequate to do the job expected in modern society.

The writing, interpretation, and enforcement of hospital licensure regulations, however, are not simple matters. The importance of specificity in the regulations is heightened by the realities of law enforcement in this field. Even the best-manned state hospital supervising agencies could not inspect hospitals frequently enough to assure absolute compliance with the regulations. Moreover, such policing would be repugnant and unnecessary. Issuance of the regulations is ordinarily enough to induce compliance, but only if the standards are clearly stated. If they are open to varying interpretations not even the best hospital can be certain how to comply, while the poorest may take refuge in their vagueness.

There are reasons, however why many state hospital licensure pro-

(Continued on next page)

Nurses Want to Strike Before Being Struck

Southern Hospitals has reported that women nurses at Broadmoor Mental Hospital in England recently threatened a walkout because of lack of control over patients. A spokesman said the patients, some of whom were Britain's most dangerous women prisoners, openly discussed which nurse to attack next.

grams are less effective in practice than they would appear by studying the language of the written regulations. The responsible agency tends to be meagerly financed and staffed. The qualifications of licensure personnel are often modest. At bottom, perhaps, is a certain hesitation to pry too closely into the associated with so distinguished affairs of voluntary institutions and ethical a tradition as that of the medical profession.

But the public interest in hospitals remains wide and is growing wider. The need for effective programs of governmental supervision of hospitals is more pressing than ever.

New Issues

Back of the problem of sharply rising hospital costs is a series of questions demanding action on a broad community basis.

One of these questions concerns the whole level of hospital utilization in a population that is heavily insured. Is there not a place in hospital regulations for some procedure, such as a designated medical staff committee, to assure the proper admission and discharge of patients, so that costly hospital beds are soundly utilized?

Closely related to the use of beds is the issue of their supply and location. Strangely enough, no state now exercises control over this basic question. Yet studies have shown that the most fundamental determinant of the expenditures of a nation or state for hospital service is the supply of beds provided. Any effective public control over expenditures for hospital service by the population as a whole requires some type of governmental control over the bed supply and location in a state.

A third current issue relates to the policies of hospitals on appointments of physicians to their medical staffs. It is well-settled doctrine that the governing board of a voluntary hospital has the authority to permit or deny physicians the right to practice in the institution. At the same time, the U. S. Supreme Court has held it illegal, under anti-trust laws, for medical societies to exert pressure on hospital boards to exclude physicians from hospital staff appointments because of their economic patterns of practice. This issue has arisen several times with respect to denial of hospital privileges to technically qualified physicians engaged in prepaid group medical practice. Should not a public agency be prepared to protect the public interest in an issue of this sort?

A fourth issue relates to the use of drugs in hospitals. The right—or perhaps even the obligation—of hospitals to use drug formularies would seem to be a matter of clear public interest that ought to come within the purview of state licensure regulation.

A fifth issue concerns labor standards. The public interest in this field has been justified on two grounds: first, to assure decent wages for all persons working in the state; and second, to assist hospitals in maintaining a qualified and stable working force in a competitive labor market.

There are doubtless other issues in today's hospital cauldron, but these may be enough to explain the heightened relevance of hospital affairs to the general public interest.

Future Needs

The issues have arisen not from any hunger for authority by public officials, but rather from the experiences and reactions of the general public. Hospitals are becoming more and more important to people, both for their services and their costs. The conduct of hospitals cannot be left solely to the prerogatives of their managers but requires the increasing surveillance of a public authority.

Admittedly, there is no state agency now equipped to do the job. Yet a properly staffed and authorized state agency for hospital supervision could be equal to the responsibilities which the times demand. The goal of this agency must be to upgrade performance and encourage excellence—not to punish or intimidate. Official personnel must play the role essentially of consultants, advising hospitals on how to meet or surpass the legal standards and how to continually improve their services within a framework of maximum economy. (There is no reason, incidentally, why much of the advice, now purchased at high fees from private hospital counseling firms, could not be given freely by a really sophisticated staff of technical consultants in a governmental agency.)

To back up the action of this staff, the official regulations should come to grips with the significant problems of hospital operation. Regulations of wide breadth should be drafted in consultation with representatives of the hospitals. Their application, moreover, should be strengthened by the support of an advisory council, representing the hospitals, the health professions, and the general public.

With proper legal standards and staffing to apply them, the far-flung public interest in hospitals could be adequately protected. Many of the problems that now beset hospital boards and administrators could be reduced. The public would be set at ease in its suspicions about waste or inefficiency in hospital management. And the rights of patients and the community to have the best quality hospital service at the lowest feasible cost would be steadily advanced.

Caution May Not Pay Off

Does your hospital's purchasing agent carefully check each supplier invoice against the purchase order and receiving report before approving it for payment? If he does, he may be spending $1 to save 10 cents in some cases. *Purchasing* reports that some companies are convinced only big orders warrant a detail check. Orders for less than $50 —which constitute more than half of the total for most companies—simply don't warrant anything more than a superficial review plus occasional detailed spot-checks.

What Is Psychodietetics?

By Sr. Agnes Cecile Hickox, C.S.J.*

Condensed from Hospital Progress, *June 1961*

Dietitians have often pondered the various reactions of patients to a hospital food service. As the dietitian makes her daily ward rounds she will hear comments ranging from "the food is wonderful" to "the food is horrible" about the meals she has carefully planned and supervised.

What is the basis for these opposing reactions? Why do people respond so differently to the same foods?

To help answer these questions, a course in psychodietetics was introduced last year for senior dietetic students at Fontbonne College. The course content covered four distinct patient groups: the average adult patient, the child, the geriatric patient, and the mentally-ill patient.

Purpose of the course was to investigate how a patient's reaction toward food actually stems from his feelings, emotions, attitudes, and individual food habits. The symbolical as well as rational meanings of food are examined, for food not only feeds the body but the ego as well.

For example, one psychologist has observed that since milk is the first food given most people at a time when they are helpless and dependent, it becomes psychologically connected with security and comfort. The students at Fontbonne studied the ulcer diet with this symbolic approach in mind. For, if the ulcer symptoms of the patient coincide with certain fears or an unconscious need to feel dependent, what better solution could be worked out than to be organically sick and confined to bed on a three-hour milk feeding?

What then can a dietitian do about the complications of emotional significance of food? Obviously, she must interest herself in the patient as a person, and particularly in his feelings and attitudes about food. This can be accomplished only if she has an understanding of people and a knowledge of the psychological attitudes toward food and eating.

The student dietitian learns from a course in psychodietetics that if she expects to perform her tasks with maximum efficiency she must guard against a fault common to many professional persons—an overmechanized view of patients. The patient is not "a cardiac" or "an appendix." He is a person.

In class, the students are introduced to many psychological phenomena common in a high percentage of the patients with whom they will be dealing. One of these factors is that sick people regress. Almost no one gets sick without also becoming a little more babyish and less mature than he was before he became ill. And one manifestation of this regression is the tendency of the hospitalized patient to look for protective, parental figures in the persons who are caring for him. The dietitian can capitalize on this tendency to win the cooperation of the patient and foster maximum effectiveness when imposing dietary restrictions.

Armed with a knowledge of psychological factors, the dietitian should not be surprised at the variety of reactions to the food service, nor should she be too sensitive to criticism. She should realize that the patient is under tension because he must modify his whole life in terms of food—one of his most basic needs.

Carelessly prepared food, served unattractively, indicates a lack of love and interest, both literally and symbolically. Food is a form of affection that one bestows on people. Of all human experiences from birth until death, the deepest one centers around food. When people lose their interest in food, it is pathologic and serious because it means that they are directing their hostility inwardly, wishing to destroy themselves.

Perhaps one of the most startling examples of neglect in realizing the importance of food was

found in a recent study at an Oklahoma institution for mentally-ill patients. In this study the daily monotonous diet of black dried figs or oatmeal with syrup was replaced with an abundance of well-liked foods of high nutritional value, including fresh fruits, vegetables, and a variety of desserts.

(Continued on next page)

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The results were spectacular. The new menu suddenly transformed the behavioral pattern of the mental patients. Fights in the dining room became rare, where previously they had been common at almost every meal. The screaming of agitated patients and the pathetic, night-long crying of depressed patients were practically eliminated; the dry skin, cracked lips, and swollen joints of the patients were greatly improved.

Psychodietetics is an engaging field. The mind and the body are so closely related that one cannot be treated or neglected without seriously affecting the other. The course at Fontbonne uncovered many areas where extensive research is needed. It is hoped that the dietitians enrolled in the course will pioneer in relating emotions to behavior, thereby hastening patient recovery through nutritionally adequate diets, attractively served.

From Tape to Chart

By Goldia N. Barclay*

Condensed from The American Journal of Nursing, *June 1961*

With the aid of ward clerks and tape recorders, our professional nurses now spend less time on charting and more time with their patients.

Our new system began when we were confronted with the necessity of finding more hours of nursing service and increasing the effectiveness of our professional nurse staff. Since we did not feel we could assign further duties to our nursing assistant group, we turned to the ward clerks and ward managers—and to the possibility of having them function as nurses' secretaries. This would relieve the nurse of most of her paperwork, including transferring doctors' orders to the visible-card file, making out medication cards, and charting information on nurses' notes.

The problem was how the nurse would communicate her notes and other information to a ward secretary for charting. The answer was a tape recorder. The nurse could dictate her observations, treatments, medications, and so on, on the tape recorder, and the ward clerk could transcribe the information on the nurses' notes. This would reduce the nurse's responsibility for charting to reading and signing the notes.

To test the idea, we instituted a pilot study during the evening hours on one of our 42-bed surgical wards. This ward was unusually active and busy, and the nurses averaged from 1½ to 2 hours overtime for charting each evening.

By the end of the second week the ward clerk was able to do all the charting for 42 patients, and within 12 weeks the use of the tape recorder was well established by nurses on all three shifts. In fact, the praise and enthusiasm of the first group convinced us that the use of the ward secretary and tape recorder should be adopted throughout the hospital in all patient-care areas. In addition, our findings indicated improvement in quantity and quality of charting, as well as an improvement in nurses' morale.

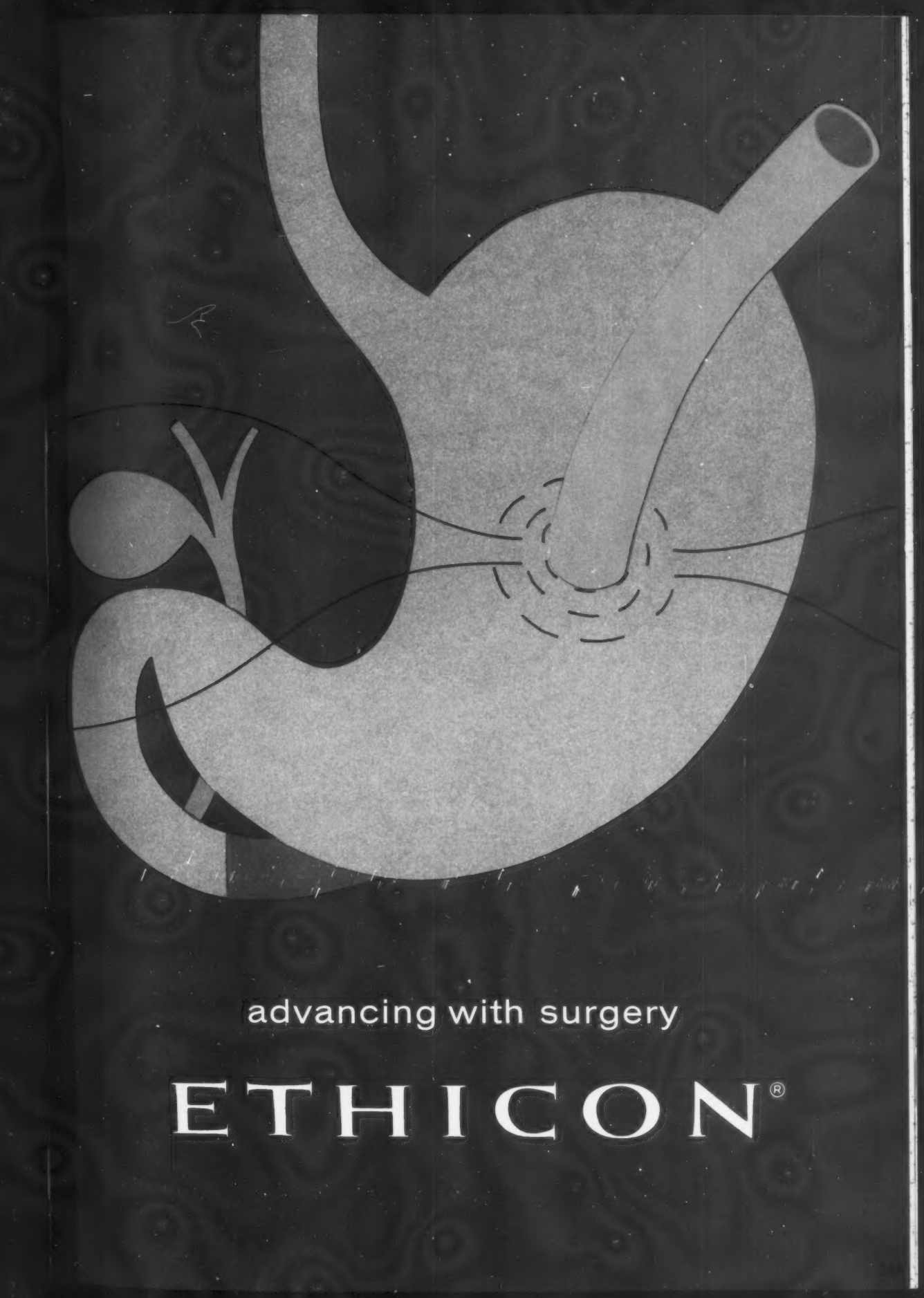
Most nurses quickly adjusted to dictating the information and enjoyed the reduction of charting time to less than 30 minutes for each eight-hour shift. It required only about ten minutes to instruct the nurses on how to use the microphone and the system of dictating information.

The ward clerks and managers have found their new secretarial duties interesting, stimulating, and challenging. Our experienced ward clerks required only a two-hour class to learn the procedure. They are able to transcribe the charting on the nurses' notes on 42 patients in less than an hour.

Establishing the use of a tape recorder on the wards has required very little persuasion. The new charting system is selling itself. The question the project supervisor hears each day is, "When do we get to start the tape recorder on our ward?" Our system, we feel, is a progressive step in patient care.

All illustrations for digest articles by Pekarsky.

*Nursing service project supervisor, San Jose (Calif.) Hospital.



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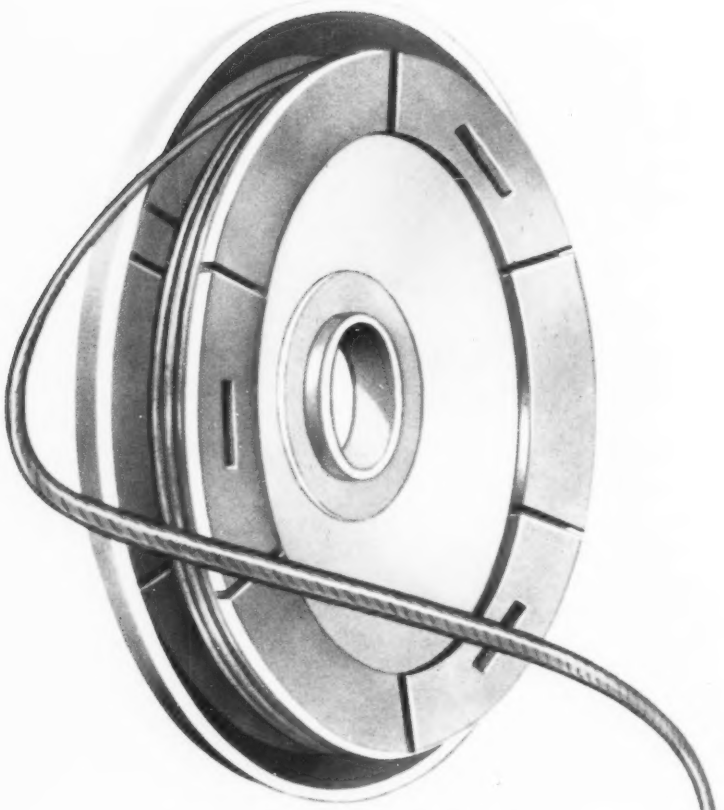

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NURSING CARE

of the chronically ill

By Martha Ball Naylor, R.N., M.P.H.*

Comprehensive nursing care for the chronically ill goes beyond the commonly accepted and currently provided scope of nursing practice. It covers psychosocial as well as physical care, including restorative services.[1] To plan, execute, and evaluate nursing care of patients with long-term chronic illness, the nurse requires a core of knowledge, understanding, technics, and communication skills.

She must be able to assess the patient's nursing problems in terms of his physical, socioeconomic, emotional, and spiritual needs; formulate a tentative nursing-care plan[1-2]; recognize the local services and facilities available for nursing care; and carry out the plan, making modifications as re-evaluation and new information become available. Communication skills are needed to interpret the nursing-care plan to other nursing personnel, and to other members of the health team in order to work with them as colleagues, since they share responsibility for care of patients. All these skills are essential regardless of the care setting.

Studies have shown great variation in median age of patients, from 56 years in general hospitals[3] to 80 years in nursing homes.[4] The ranking order of the first 10 diagnostic categories also varies, but cardiovascular disease heads the list in both types of facilities. Cancer, hip and other fractures, diabetes, arthritis and rheumatism, accidents, and senility are most frequently mentioned as other causes of chronic disease and disability.

Nursing responsibilities can be divided into three distinct but associated groups as they relate to patient care. The first includes responsibilities derived from nursing's direct relationship with medicine. Nurses assist patients by executing technical medical tasks from diagnostic, therapeutic, and evaluative plans which physicians have delegated to them.

In the general hospital policies and procedures are sufficiently standardized to be a predictable aspect of nursing care, and they are understood by physicians, nurses, and patients. They are not nearly so well defined in the care of the chronically ill and aged.[1] The nurse in chronic-disease nursing must be adaptable to new possibilities as medical science discovers new knowledge and technics.

The second group encompasses nurses' responsibilities to make continuing observations of patients. Because nursing personnel in care facilities have contact with patients 24 hours a day, they have an opportunity to observe them and to gather data useful to physicians in diagnosis, therapy, and evaluation. The visiting nurse utilizes the patient's family as observers.

The data collected are especially important in the care of the chronically ill, because physicians' services may not be readily available, and the nature of the disease often involves many minor and subtle changes that may go unnoticed. The nurse must observe and integrate these data, which may be of significance to nursing personnel, physicians, and other professional workers. She looks for implications of long-term illness and observes the relationship between the patient's environment, family, personality, normal process of living, and his disease. Each person's uniqueness has to be recognized and incorporated into the total plan of care.[1]

The third major group of nursing responsibilities includes those associated with intimate bodily care, which is the sole responsibility of the nurse. While care and comfort of the patient is being achieved through bath-

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ing, feeding, toileting, positioning, moving, dressing, and undressing, often the person performing these duties can get additional information about patients, their families, their fears and tears, through normal conversation. Some of these tasks can be and are being delegated to other nursing personnel, but the professional nurse is the one responsible for the type and quality of personal care.[1]

To achieve patient-centered care the primary focus must be on the individual patient. The emotional and social factors, the medical diagnosis, all have important bearing on the identification of nursing-care problems, and on the development of the individual patient's nursing-care plan with the patient by the nurse, who is giving his direct care.

A study conducted by the New York-Cornell Medical Center, entitled *Toward Better Nursing Care of Patients with Long-Term Illness,*[5] *showed that professional* student nurses and medical students who became involved with the personal problems of patients with long-term illness were more interested in their work, had more job satisfaction, and were more capable of giving quality care than those who were not concerned with the patients' personal problems.

To obtain information on the individual's personal problems, to use all information available from records or through personal contacts with the physician, social worker, physical therapist, nutritionist, or other personnel. Often, however, the physician and nurse may constitute the total team. In such instances the nurse's ingenuity will be taxed to the utmost, but it is remarkable what useful resources can be unearthed when interest is keen enough to search them out. Supervisors, consultants, and persons working in other agencies in the community are willing workers when asked.

The nurse staff has a unique opportunity round-the clock to talk to the patient, and learn what he knows and comprehends about his condition, and what he really thinks about the most important things in his life. She should seek answers to the following questions: Is he happy about his placement in the care facility? If not, why? Does he have a family? If so, will they visit him? If not, is there someone who cares? Does he have financial problems? What are his worries and fears? What type of recreational or diversional activities does he enjoy? Is he close to his church? If so, who is his spiritual counselor? Does the counselor know about his illness, and will he visit the patient?

These are some of the areas for exploration. The astute nurse will be a good listener; the patient will usually furnish the clues for follow-through.

The nurse will need to know a great deal about the patient's condition in order to assist in carrying out the treatment regimen prescribed by the physician. This type of information is usually available in the hospital, but in some care facilities she may need to assist in securing it. It is necessary to integrate this information with that on the social and emotional aspects in the nursing assessment, for identification of nursing problems, so that the nursing-care plan developed with the patient will provide for total patient nursing care.

The facts about prevention of disability (required to plan with patients and their families for nursing assistance with activities of daily living) are usually less available than other types of information, but they are necessary, in planning restorative services for patients in long-term care settings, because of the high disability rate in the chronically ill. Alice B. Morrisey, R.N. in her book *Rehabilitation Nursing*, provides an excellent check list for obtaining this information.[6]

Physical rehabilitation is a "natural" for nurses. All nursing has its rehabilitative aspects. For example, student nurses learn the principles of posture and positioning of patients early in their professional nursing courses. A little later crutch walking is taught in the surgical specialty course in orthopedics. Yet for too many nurses rehabilitation is still a scare word. Many of them would be surprised if they took time to make an analysis of the rehabilitation principles they practice every day in their nursing activities. This does not mean that they do not need and welcome teaching and assistance from specialists, such as phyciatrists and physical therapists.

Nursing problems commonly encountered in the care of the chronically ill. Incontinence is a common problem, especially in the aged. It should be remembered that it is a problem for the patient, first and foremost. For many patients it is most embarrassing, causing social withdrawal. It is also a critical nursing problem. Keeping patients clean and dry is essential for good physical care. This involves extra costs for linens and absorbent materials.

Incontinence too often means insertion of an indwelling catheter for the convenience of the staff, much to the discomfort of the patient. The catheter may prolong the incontinence and, in addition, be an irritating factor physically, emotionally, and socially, and may lead to greater urinary-tract problems.

Certain physical conditions contribute to incontinence: spinal cord injury and disease; strokes, hardening of the arteries with changes in the brain; disorientation caused by administration of drugs; dehydration and senility. Each patient needs careful and complete

medical evaluation to determine whether physical causes contribute to incontinence. Social and emotional factors may be present and may also need evaluation. Research is needed on the causes of incontinence, but a great deal can be done for incontinent patients if maximum use is made of present knowledge.

Controlling incontinence may be a trial-and-error process in development of a regimen for the individual patient. In the patient with cord or brain changes or damage the usual sensation of wanting to void may be absent. This patient needs to be helped to recognize other signals, such as a distended abdomen or chilliness of the skin. Making the patient comfortable and placing him in an accustomed position may induce voiding. One must work with each patient to discover the most successful method for him.

Senile patients may forget to go to the bathroom or may start too late. One method for helping these patients is to observe their pattern of voiding and then set the alarm clock five to 10 minutes before the usual voiding time. Some of these patients may require routine toileting in accordance with habit patterns.[7] Establishing a routine similar to that for training young children is often effective and not complicated. The schedule can be carried out effectively by nursing aides, but it needs to be planned and supervised by professional nurses. Patient approval when success is attained is helpful with senile patients. One must be persistent, but time and effort expended pay dividends.

Disorientation, restlessness at night, forgetting to go to the bathroom, or accidents may be symptoms of oversedation. Nursing personnel should watch for such symptoms, and be willing to stop sedation for certain patients, because drugs often increase the problem. A rugged few days may ensue when drugs are discontinued, until the new regimen of nursing care is established. As drugs wear off the patient often becomes more aware of his surroundings and is willing and able to take more responsibility for his behavior. When some sedatives are discontinued, particularly the barbiturates, the patient's mind clears and he is able to control urinary output.[8]

Pressure sores are another nursing problem. Preventing bedsores is much easier than healing them—for both the patient and the nurse. A large bedsore in a heavy patient, especially one who is incontinent, can cause untold pain and discomfort to the patient and be a nightmare to the nursing staff. Such patients may require hours of costly nursing time as well as additional supplies.

When a patient complains of a sore back, heel, or any other spot, the nurse should examine the area and start preventive action immediately. In the elderly any delay in treatment may mean the breaking of the skin, with serious consequences and perhaps involvement of deeper tissues.

The skin of older persons may have reduced sensitivity. Signs may appear which an alert nurse should recognize as a potential bedsore before the patient reports discomfort. Therefore, careful observation of the patient's skin for even slight redness or discoloration or any change is essential—particularly since many patients with chronic illness have circulatory disturbances.

If a pressure sore develops in spite of good preventive measures, it should be considered a serious medical problem. Prompt medical evaluation should be obtained, and prescribed therapy should be promptly and rigorously carried out by the nursing staff. Bedsores are often indicative of more deepseated systemic problems.

There are other measures for the prevention of bedsores besides caring for the skin. Getting old Mrs. Jones out of bed twice a day may be a chore, but she needs her circulation "stirred up" and her position changed. It may mean the difference between having a bedsore at the base of the spine and preventing one.

A diet containing the essential nutritional elements is basic. It is a part of patient-centered care for the nursing staff to see that the patient is helped to eat the food served.

Good foot care is essential for all patients with chronic diseases. Painful feet are the fourth commonest cause of discomfort in the elderly. In addition, elderly persons with painful feet are apt to shuffle or drag their feet, and this in turn increases the accident hazard from falls.[9] A hygienic regimen of foot care recommended for diabetic patients is a good regimen for care for any person. Details of such care are given in Public Health Service Publication No. 567.[10]

Results of a demonstration project in Minneapolis, on the value of using public-health nurses to teach rehabilitation nursing to nursing staffs in nursing homes, were reported in July, 1960 by Park and Moe.[11] Prior to the study public-health nurses from the combined nursing service of the health department and the visiting nurse service were assigned to work on the wards at the Kenny Institute to gain rehabilitation nursing experience. These public health nurses taught the nursing staff in the nursing homes.

The study extended over a period of one year. Six homes were studied for the first six months, and another six homes for the second six months. Intensive rehabilitation nursing was demonstrated in the participating homes, with the authorization of the patients' personal physicians.

The impact of the program on 78 individual patients was measured and these patients were compared with 71 control patients who were followed during the same period. The impact of the program on the 12 participating homes was also evaluated, and these homes were compared with the 12 control homes.

Both participating and control nursing-home patients were elderly, suffering from disabilities resulting from strokes, old fractures, arteriosclerosis, paralysis agitans, arthritis, amputations, and other conditions commonly found in the aged.

The public-health nurses spent one-half day each week in the participating nursing homes, teaching and demonstrating rehabilitation nursing technics to the nurse in charge and the nursing aides. Emphasis was placed on teaching patients and their families technics needed to maintain remaining muscle function, and on preventing unnecessary contractures.

Items covered were muscle and joint movements, placement in bed, use of footboards, transfer technics for getting in and out of the bed, use of wheel chairs, crutches, and appliances, self-help in dressing, walking, feeding, bowel and bladder training, and patient motivation. The nursing-home staff was expected to con-

tinue working each day, between the nurses' visits, throughout the six-month period, with stimulation and guidance by the public health nurses.

The following conclusions were reached:

1. There was significant improvement in 48.7 percent of the patients given intensive rehabilitation nursing, compared with only 18.3 percent in the control group. This accomplishment was regarded as especially significant, when it is considered how unpromising some nursing-home patients are, and since no physical therapy was used.

2. Getting patients up during the day, and the marked success of bowel and bladder training, reduced the amount of laundry, practically eliminated bedsores, and greatly reduced the need for back care during the unpopular 3-11 p.m. shift.

3. Nursing staffs became more stabilized, more interested in further training and in the use of reference books.

4. A spirit of optimism was evident everywhere, generated by the successful efforts of patients to participate in communal living.

5. The demonstration served to dispel part of the pessimistic attitude of physicians, nurses, and relatives toward patients in nursing homes.

6. The Kenny Institute rehabilitation nursing technics and similar ones can be learned and applied by staffs in nursing homes.

7. Acceptance of the principles of rehabilitation nursing and enthusiasm of the nurse in charge were primary factors to a successful program.

8. Nursing aides can carry out technics after they have been grounded in basic nursing, given an elementary description of the physical and mental condition of the patient, and taught specifically what to do. They need ready access to a professional nurse or the nurse consultant who has special training or experience in rehabilitation nursing.

9. Much can be accomplished in preservation of function and restoration of activity within the framework of nursing technics without infringing upon the field of physical therapy. This factor has real significance in view of the severe shortage of physical therapists.

Two publications prepared by the Public Health Service were found useful as teaching tools in the demonstration: *Strike Back at Stroke*[12] and *How to Be a Nursing Aid in a Nursing Home*.[13]

It is encouraging to know that evidence is accumulating which shows that restorative services *do* help chronically ill persons, and that nurses can play an important part in helping them to lead more comfortable and satisfying lives.

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James Urda Wins TOPICS Editorial Competition

First prize-winner of the 1960-61 HOSPITAL TOPICS' editorial competition for hospital administration graduate students is James S. Urda, now administrative assistant, Episcopal Hospital, Philadelphia. The $100 prize in this third annual competition was awarded to Mr. Urda for his "well-written and well organized report" entitled "A Written Report on Diploma Nursing Education."

In reading the entries the judges followed a 100-point scale which included the organization, importance, originality, and completeness of the manuscript, as well as the writing itself. In Mr. Urda's report "the coverage is complete," said the judges, "and there are several constructive new ideas in the presentation. It is a good contribution to the literature."

TOPICS' readers will recall that Mr. Urda—who attended the University of Michigan School of Business, Program in Hospital Administration—was a third prize winner in last year's competition, and that his paper on "The Hospital Viewed as an Organizational Synthesis" was printed in the February, 1961 issue of TOPICS.

Second—and the only other prize winner—is William King Brown, who is administrator of the Greensville Memorial Hospital, Emporia, Va. His paper on "Selection, Training, and Utilization of Nurses' Aides in the General Hospitals of Kentucky," was ajudged to "very effectively demonstrate the problems of recruitment and training of non-professional nursing personnel. It represents an excellent piece of research and in this regard is decidedly original." Mr. Brown, who will receive $75 as his second-prize award, is from the School of Hospital Administration, the Medical College of Virginia.

TOPICS' editorial competition is held yearly to promote high standards of professional writing and individual research, and to give recognition to schools and students of hospital administration. All academic and resident students of the recognized graduate schools are invited to participate. Deadlines and rules for the fourth competition will be announced in a future issue.

Student Nurses Plan Inter-Disciplinary Patient Care

By Eleanor E. Drummond*

Nursing as a profession includes the responsibility of preparing its members to meet the social and health changes in the nation. In the last two decades both the incidence of chronic disease and the number of patients with long-term illnesses, have increased. It is essential that nurses be prepared to care for these patients.

And what better place to learn care of the long-term patient than in a tuberculosis hospital? The breadth of facilities and cooperation of a helpful and experienced staff are valuable adjuncts to student learning. In addition, the patient with tuberculosis presents all the aspects necessary in learning to care for a patient with multiple needs during an extended period of hospitalization.

A Planned Learning Experience

For these reasons, the School of Nursing, University of California, Los Angeles, has incorporated into its curriculum, for both the basic baccalaureate student and the baccalaureate student who has an R.N., content and clinical experience in care of the long-term patient. For the basic student, formal lectures are incorporated into the medical-surgical area of learning; for the R.N. student, the content is part of a course entitled "Adult Health." Of the two clinical areas used to give the student experience, the program at Olive View Hospital, a tuberculosis facility, will be described here.

Resting against the San Gabriel foothills in the San Fernando Valley, Olive View Hospital is about 25 miles north of the UCLA campus. It was dedicated in 1930 as "Olive View Sanitarium" for the care of the tuberculosis patients; the capacity at that time was 95 beds and the facility had a total of 30 employees. In 1960 the institution increased its services to those of a general hospital and became "Olive View Hospital." Approximately 1,000 patients—of which 120 are children—can be accommodated now. The surgical units have a capacity of 140 beds and all types of general and chest surgery are performed in the operating rooms.

Clinical experience for all students at Olive View Hospital lasts four weeks: 16 hours a week, or two full days. The clinical experience is a combination of patient care, informal discussion with various workers, and a final case presentation.

Orienting Nurses to the Clinical Facility

The students' orientation to the hospital is planned to heighten their total learning experience in care of patients with long-term illness. Only those specifics vital to learning care for the patient with pulmonary tuberculosis are covered. (For example, learning to fill out seven copies of the transfer report is vital learning for the new staff nurse, but not for the student nurse.) During orientation, and throughout the entire experience, the students are reminded to apply their learning in the tuberculosis facility to *all* patients who need care over an extended period of time.

The methods used to direct the student to the bedside of the patient—and thus help assure meaningful experiences—are varied, depending on the student's past experience. A basic student who has developed considerable skill in relating to one or more patients at a period of time will be given a functional assignment at Olive View to encourage her to contact all the patients in the 38-bed unit as rapidly as possible. The R.N. student who has had considerable experience with functional nursing assignments and has not yet developed skill in relating to the individual patient will be assigned to one or two patients.

During the first two weeks the students learn the services available and, from contact made while giving patient care, the various patients' needs for those services. The third and fourth weeks are usually spent on resolving some of the particular problems individual patients demonstrate. Students are given complete freedom in choosing patients to study. Many students work intensively with several patients and make the final choice of an individual case just before the final presentation.

As a focus for their thinking, their care of patients, and their contact with other workers, the students are given the following guide questions:

Disease

1. When; where; how discovered; what agency involved?
2. If previously treated, where; how long; and with what? Response to treatment?
3. Present stage and activity of disease?
4. Sputum status?
5. Skin-test results?
6. What was the presenting medical problem?

(Continued on next page)

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Before he may go home each patient at Olive View Hospital is presented at this Discharge Planning Conference. Pictured here are some of the various participants in the conference. Members include public health liaison nurses from the city and county health departments, the TB control officers from both health departments, medical social service workers, unit physicians, the assistant medical director, the director of extended medical services, surgeons, the psychiatrist, and the vocational and education rehabilitation director.

Therapy

1. Chemotherapy: types; dose; patient reactions.
2. Other drug therapy.
3. Exercise limitations.
4. Is surgery indicated? If so, on what basis?

Social Aspects

1. Family constellation: how many; what type of interaction?
2. Presence of tuberculosis in other members?
3. Job history: is vocational rehabilitation necessary?
4. Educational background.
5. Other social agencies and/or workers involved with this patient at this time.

Nursing Care

1. What plan was made?
2. How did you carry out the plan?
3. Success and/or failure encountered.
4. Projected nursing care needed.

Occasionally the students give complex and complete bedside care to acutely ill patients. However, most patinets are permitted to shower, are up and around part of the day, and are able to care for their own personal needs. Therefore, the nursing care of the majority of patients consists primarily of teaching the patient about his disease and his responsibility in the care, and listening to the patient, helping him formulate his problems and then making the proper evaluation of the problem and referral to the appropriate worker.

The success of a clinical experience in providing interdisciplinary patient care depends upon the richness of the resources in the clinical facility. Olive View Hospital not only provides a multiple array of services but the staff also provides a warmth for and an understanding of students and their needs in learning. Such an acceptance of the student nurse, and a willingness to participate in her education, generally assure increased learning on the part of the student.

Representatives from each of the services meet with the students. These meetings are arranged, but informal. They include a presentation of the services for patients, a discussion of some individual case histories, and an opportunity for the students to ask questions. Later on, when the student has discovered a particular problem of an individual patient, the appropriate staff members will be contacted by the student. At that time the student will present the problem and with the help of the staff worker or workers will, hopefully come to some solution.

The following services are regularly scheduled for group meetings with the student nurses.

The public health liaison nurses from the city and county health departments regularly assigned to Olive View maintain communication between the health department, the health districts, the patient in the hospital, and the home. They aid in discharge plans, provide the administrative channel for passes, and do almost anything else to keep the patient in the hospital for completion of the cure.

The director of the medical social service outlines the functions which help the patient adjust to hospitalization, handles the multiple social problems which usually occur during extended hospitalization, and assists in rehabilitation planning for the future. Also meeting with the students is a medical social service staff member who has the unique duties of serving as a liaison between the hospital and the Bureau of Public Assistance. Her function is to help the ward medical social worker made discharge plans with the patient and to help keep the plans realistic in terms of organizing the economic living patterns.

The rehabilitation services encompass both the short- and the long-term goals of patients aged 18 and over. The rehabilitation areas are primarily educational and vocational. The educational opportunities (which can be coordinated by the director) cover grammar school through college courses. Vocational aid may range from building work tolerance with occupational therapy to complete vocational retraining.

Patient programs (entertainment, services) include radio programs directed and produced by patients from a station on the grounls anl a patient-published monthly magazine—both under the supervision and encouragement of the director. (The director arranges for community participation as well.) Individual wards are sponsored by community groups and parties are held for the patients at least once a month. Community groups provide shopping service, TV sets for individual wards, and other volunteer activities. Along with the rehabilitation director, the director of this program also coordinates "patient helper items." These "items" are some type of non-pay work and are used for patients who are up on exercise and need to develop their tolerance but not ready to return home to full activity.

Religious service: one of the two Protestant chaplains meets with the students. There is also a full-time Catholic chaplain. Chapel services of all faiths are held for all patients and those unable to attend can hear the sermon or mass over individual ear phones at their

bedsides. Individual counseling of patients and wide cooperation with all the other services mark the activities of the chaplains. In addition, religious visitors of all faiths and denominations are available to each patient.

Mental health services and occupational therapy are two new programs that have recently been added to Olive View's total treatment program. During development of these services last year the students were not regularly scheduled to meet with the directors. However, students will be oriented to these programs in the future.

In addition to meeting with the staff, the students also observe the discharge staff conference to see the entire team in action, presenting and discussing the medical, social, and nursing plans that have been made for each patient.

As a part of the orientation, other directors meet with the students on a non-continuing basis (in other words, the students do not take individual patient problems to these directors, who are listed below).

The medical director discusses the administrative medical practice in TB control. This is a valuable topic as a tie-in with the student's public health experience where it is necessary to understand placement procedures, legal isolation, and other control measures for this communicable disease.

The assistant medical director discusses treatment and the disease process as bases for patient teaching. He holds informal classes with patients on the admission wards each week, and the students must observe at least one of these classes as an aid in their own patient teaching, to keep the teaching pertinent, simple in terminology, and applicable to the individual.

The director of nursing service talks about the nursing problems and solutions of staffing 38 wards, each an individual cottage. She also discusses the nursing problem in caring for patients who are separated from family and friends for an extended period of time.

The director of the laboratory covers current methods of tuberculosis bacteriology and the nurse's responsibility in proper collection of specimens. Since Olive View Hospital is a major research center, some time is spent in outlining a few of the more important current projects such as phage type and classification of the "unclassified mycobacterium."

Student Activities

The students work with patients, the head nurse and ward physicians, the medical social service worker assigned to a particular ward, the rehabilitation director, the public health liaison nurse, and the Bureau of Public Assistance liaison worker. The staff has noted that the student brings a considerable understanding of the patient to the worker, benefiting both the staff worker and the patient because better plans can be made with increased knowledge. The staff has also observed that the types of patients brought to its attention are often withdrawn and would not have been noticed so rapidly if the student nurse had not taken the initiative. Not only are the students learning to coordinate existing services, then, but patient care and service to the hospital are direct results.

Much of the student's activity is related to presentation of the case study. To share the information with the other students, the student will present orally material organized around the questions listed previously. Although her presentation ordinarily lasts only 15-20 minutes, the total time spent on any one case is generally close to an hour, since time for questions by other students and general discussion is included. This presentation is also an opportunity for the instructor to emphasize certain material and point out relationships to aid the students in transferring their learning to the larger area of long-term illness.

The case presentations are gratifying in many respects: first, the variety and multiplicity of problems presented; second, the depth of understanding displayed by the students; and third, the demonstration of a practical working-through with other individuals—the solution of a patient's problems. As expected, some of the students display a deeper understanding than others. However, each student is given an opportunity to work both with patients and with the various staff workers available in the clinical area.

The participation of the staff is also gratifying and their understanding of the educational goals is very encouraging. For example, one of the students worked with the rehabilitation director on a vocational problem, plans were made, and at one point and additional staff member was needed. The student asked the rehabilitation director if he would contact the other person. His reply was, "No. You contact him. You need the experience." This reply shocked the student, who was reticent to take the initiative. However, such a reply is consistent with the desires and planning of the instructor—to give the student as much opportunity for planning and initiating contact as possible.

Summary

Students are in a better position to know the services necessary for a long-term patient after initial orientation to services available in a clinical area and continued contact with them in relation to a specific patient. This experience, in addition, gives the student a better opportunity to develop skill in coordinating services to aid the rehabilitation of the long-term patient. The richer and more varied the services are in a clinical area the greater the possibility for the student to learn inter-disciplinary planning of patient care.

"He's got what it takes to pass a medical audit—absolutely undecipherable writing."

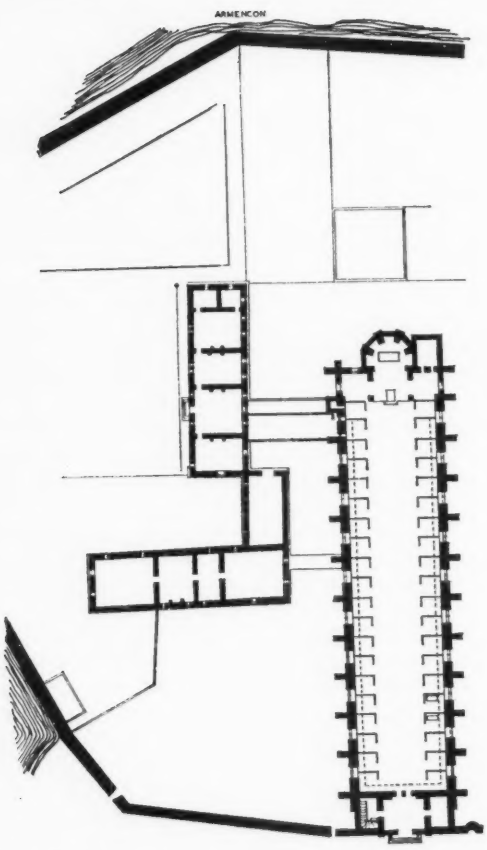

Figure 1. Hospital of Tonnerre, 40 beds, end of 13th Century

The Development

This article, with the accompanying illustrations, first appeared in Krankenhaus Umschau, *(published in Kulmbach, Bavaria) in June, 1960. TOPICS' editors considered it an exceptionally comprehensive analysis and—feeling our readers would be as interested as we were—we arranged for the following translation.*

Any historical consideration of typical hospital design involves first a full appreciation of those component elements which were in existence at the origin of the development. These elements derive from various aspects of living. Religious viewpoints, philosophical ideas, social movements—all have had as much influence on the structural form of the hospital as have functional considerations and prevailing methods of therapy. Even when the work flow has seemed to be the determining factor in the hospital structure, in the background more universal elements still have had some influence since the material function itself is an outgrowth of philosophic considerations. Theraputic methods change along with universal principles and scientific knowledge; along with them the layout of the hospital changes.

In this article the emphasis is on development. We will explore representative development of hospital structure from the 13th century to the present basic prototype. This "prototype" is a building in which the service and ancillary facilities are located in one or two low stories adjacent to a high building housing the patient areas. Although the basic prototype in no way dominates the hospital design field—and we cannot predict that it ever will—it is, nevertheless, predominant over other construction today to such an extent that it may be considered as its terminal point of development. Certainly it is one of the most interesting types of buildings.

The first example for our historial review is the hospital of Tonnerre. Founded near the end of the 13th century by Margaret of Burgandy, the queen of Sicily, its construction site lies beside the Armencon River, near a spring. Hospital wastes are emptied into the river by two large underground canals (figure 1). The layout of the main building is typical of this period. At the end of a long hall, and illuminated on two sides, stands the main altar—a fixture in all such institutions for the sick during this time. Adjacent and connected to the main building are kitchen, service rooms, and the benefactress' apartment. According to the wishes of the founder, the institution was designed for charitable purposes. Nuns and monks cared for pilgrims, strangers, the poor, and the sick both inside and outside the hospital.

In Tonnerre, as in all Middle Ages installations, charitable care was emphasized. Looking after the ill was only one of the many duties. The facility also served the old, the crippled, foundlings, widows, orphans, and pilgrims. General hospitals as a type did not exist at this time; just a room or a part of the institution was set aside for the sick. Contagious cases were treated in special houses located in the lee side of the cities. These houses served only for isolation. Their existence does indicate, however, a beginning awareness of the folly of trying to combine all purposes in one facility. A little after the 13th century, institutions began "to accept the most diagnosable cases only for a while, but when they are well enough to walk"—as they said at that time—"they are discharged."

As their responsibilities changed in time, new types

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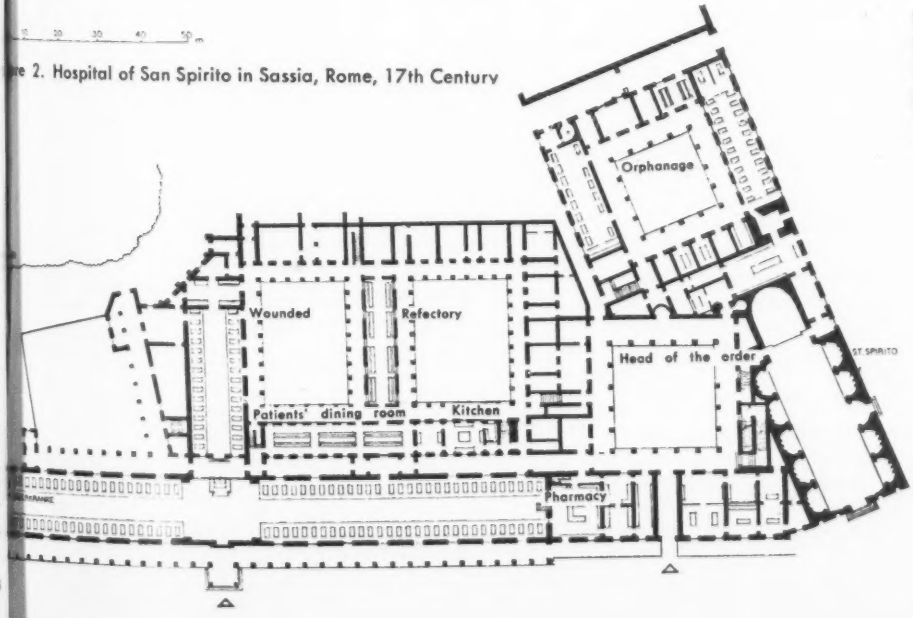
# of a Basic Prototype in Hospital Design

By Professor Heinrich Bartmann*

of hospital building developed. Figure 2 shows in outline the Hospital of San Spirito in Sassia at Rome at around the end of the 17th century. This hospital had fallen into ruins in the 14th century during the stay of the Popes in Avignon; Pope Sixtus IV had it restored in 1477. From this latter era stems the *salle des fievreux* portion, with the altar room covered over by a cupola. In 1575 a palace was added for the naster of the order, and in 1660 the *salle des blesses* (surgical suite) was built on. This area projects at a right angle to the *salles des fievreux* and with it constitutes a cross—a basic form typical of that period. Both the administrative rooms and a spacious pharmacy are located near the entrance. Kitchen and dining halls are also discernible in the plan. Toilets were not provided; buckets were used.

The adjoining buildings are situated around large inner courts. It is not known whether or to what extent the rooms adjoining the surgical hall were used for treatment, operations, or autopsies. At this time everything about the body and organs visible to the unassisted eye was known through zealous dissecting. Circulation of the blood had been discovered by William Harvey; injections were known; the microscope had been invented (although it was not considered necessary until the end of the 18th century).

In 1787 a plan was originated for a 1200-bed hospital at Paris. It began two years before when the king had commissioned his Academy of Science to review a plan of the architect Poyet for a new hospital. The Academy chose a commission of eight members which studied the existing Hotel Dieu and compared it with other



re 2. Hospital of San Spirito in Sassia, Rome, 17th Century

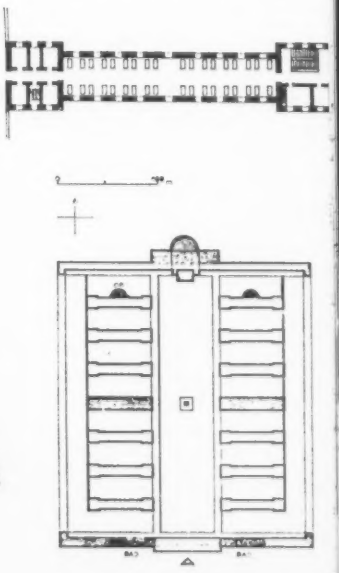


Figure 3. Paris project, 1787

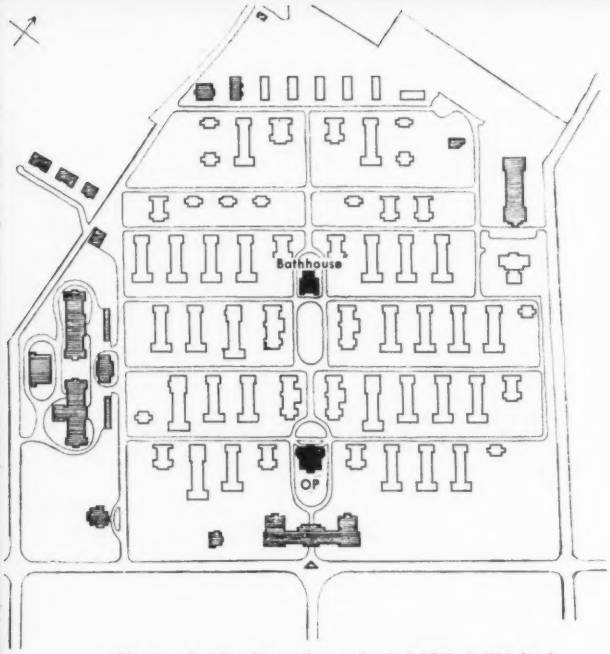


Figure 4. Hamburg-Eppendorf, 1887, 1475 beds

charitable institutions in Germany and England. The commission demonstrated the inadequacies of Poyet's plan, criticizing its hygienic facilities particularly severely, and the proposed project—which had been based on a radial-axis system—was finally rejected.

However, Poyet then developed a new plan which incorporated the commission's proposals (figure 3).* This second plan shows a row of parallel buildings for men and women. These buildings are connected with each other, and with the building where incoming patients are received, the adjoining wings, and the chapel, through covered corridors. Of the four floors, the lowest is used for convalescents, the two above for the sick, and the top one for personnel and storage. The staircases are open, however, so that circulation of air might prevent disease from being transmitted through the rooms. Each operating room is built on to the surgical unit. A centrally located building is used as a kitchen, another as a pharmacy. In the south entrance all the rooms are arranged so they can be used for admission and reception of the sick.

After visiting England, the commission finally adopted an arrangement which established division by service in isolated pavillions. This system has been considered valuable even into our present century and it is used today for special institutions such as infirmaries and tuberculosis hospitals. Among general hospitals, however, the pavillion system reached its peak in the 19th century when the need for an effective barrier against the transmission of disease and the dual desire to expose the patients to fresh air and to tie their rooms to the outdoors as closely as possible led to an increase in the number of decentralized, low buildings with patient areas in one or two stories.

One of the best known examples of this is the general hospital in Hamburg-Eppendorf, which was built in 1884-89 and was later extensively renovated and expanded (figure 4). Here two characteristic buildings served for the treatment of patients only: the bathhouse (precursor of the physical-therapy room) and the building with the operating room suite. In the initial structural plans this surgical building contained two operating rooms on the main floor with very little extra space allotted. (Only in later installations, such as the Frankfort city hospital, is a provision made for a chloroform room.)

In addition to the pavillion system other plans were developing. One of these was the corridor system where one or more multi-storied floors were constructed either in a strong geometrical plan or in a form suited to an already existing building (figure 5). These centralized installations had an advantage over the pavillions because of their shorter corridors and greater efficiency. However, they were not suitable for the rapid development of medical investigation and treatment methods which are associated with such people as Virchow, Koch, Pasteur, Roentgen. And further discoveries in technics and medicine caused an even greater rise in the demand for research and ancillary facilities.

But let us return to the pavillion system. The plot plan of the Rudolf Virchow Hospital, Berlin, in 1906 incorporates just such a system for the x-ray department, the operating-room installation, and the physical-therapy facilities (figure 6). And in the greatly admired hospital of Munich Schwabing, built in the beginning of the 1920's, the proportion of ancillary buildings to patient areas mounted. In this institution the multi-storied pavillions are linked by closed hallways (figure 7). However, these decentralized arrangements are not equal to today's requirements, due to the excessive demands for personnel in the hospitals. Preference is now given to the centralized installation, a type we shall consider later.

From our historical review we can see how successful research in the technical and natural sciences led to a unique development of methods in medical treatments; and how, for this reason, the ancillary facilities became the core of the hospital. We may now attach as much value to the ancillary facilities (which include both treatment and diagnosis), and especially to the bed unit which stands in close functional relationship to them, as we do to the rest of the hospital.

Our next step is to acquaint ourselves with the demands made on a modern hospital, in order to achieve standards with which to evaluate the various structural solutions, especially as regards the basic prototype. Setting standards is not easy because justifiable demands are made on all sides—by consideration of public relations, by patients, by doctors, by nursing personnel, and not least by the hospital administrator, who is financially responsible. Section 182 of the German Federal Insurance Law specifies that care of the sick must be "adequate and appropriate." At the same time, the sum of necessary services may not be exceeded. What happens, then, is that a general demand is established and, concurrently, a limit is set: the hospital must be completely functional but the costs must remain within practical limits. "Efficiency" and "function" are, therefore, the first standards to be attained.

The necessity for efficiency is well known. In German hospitals it is based on the fact that only 10 percent of the patients pay their bills from their own funds. For the remaining 90 percent social insurance pays a fixed part of their costs of care, and deficits are made up from public funds as far as they are not covered

*In the illustrations which follow the buildings containing beds are represented in white, the ancillary facilities in black, and the remaining buildings in cross-hatching.

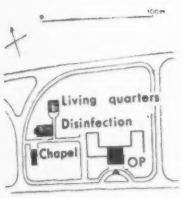


Figure 5. Hamburg-Eppendorf, 60 beds

Figure 6. Rudolf-Virchow Hospital, Berlin, 1906, 2000 beds

through such private sources as medical-care associations and endowments. This means that hospitals are subsidized institutions and public interest in the efficiency of hospitals is therefore justified.

Among the factors which affect efficiency the general layout of the institution is the most comprehensive. Inefficiency of substantial proportions cannot be avoided unless the individual hospital is planned as part of a well-defined net of hospitals of varying sizes and purposes.

The second factor in the institution's efficiency is its size, which is grossly related to the number of beds. Today the lower limit lies between 200 to 300 beds. This figure is set as the minimum medical requirement for ancillary facilities since the high costs for these necessary services cannot be justified with a smaller complement. In addition, hospitals which are any smaller can attract an excellent medical staff only with difficulty. On the other hand, hospitals of more than 700 beds are impractical because many of their corridors are too long. Hospitals beyond this maximum limit also tend to lose the personal touch and become impossible to supervise. Actually, various investigations indicate that the most practical size lies somewhere around 500 beds.

Further, efficiency is strongly dependent upon the length of stay; that is, the average patient stay per admission. In order to make good use of the available number of beds and the expensive treatment facilities, a turnover as large as possible is desirable. This is attained through a shortening of the length of stay. In Germany, the figure of 28 days is still very high, particularly as contrasted with 14 days in Sweden and 8 days in the United States. And why is it so high? Frequently the reason is that the capacity of individual ancillary facilities has not been accurately estimated. Bottlenecks result and with them comes waiting time for the patients.

Beyond this, the proportion of admissions between acutely ill patients with short stays and chronic patients with greater lengths of stay is of significant influence in efficiency. The increasing life expectancy—over 65 years in Germany today—brings many patients over 50 years old into the hospitals because for various reasons these people cannot be cared for at home. The diseases of old age, however, are generally of great duration and therefore are somewhat comparable to chronic illness in terms of length of stay. In addition, the terminally ill and the convalescent can also be classified in the longer-staying group. Recently an effort has

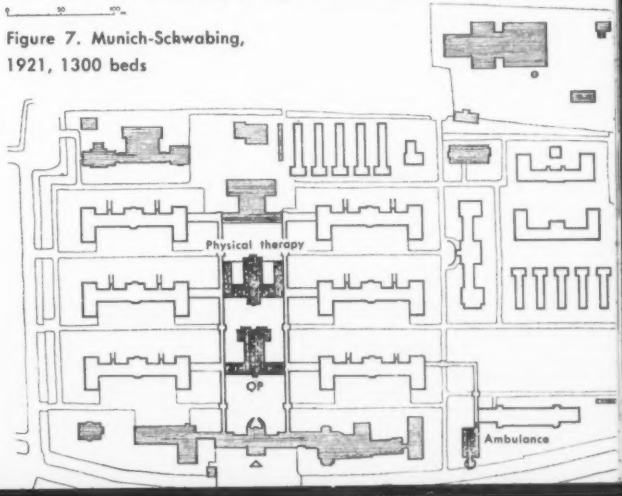
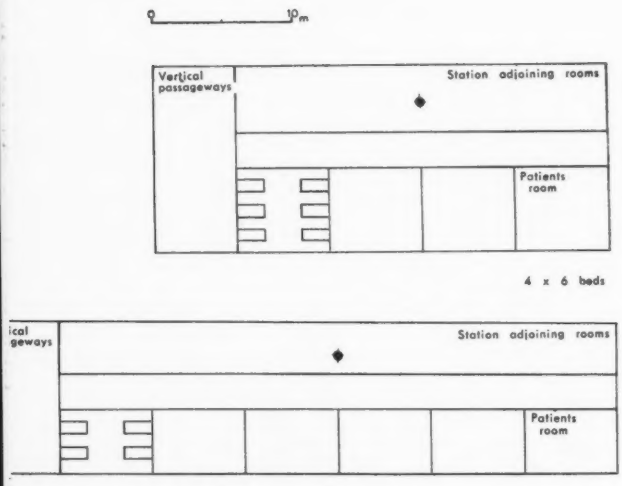


Figure 7. Munich-Schwabing, 1921, 1300 beds



re 8. Comparison in length of two 24-bed stations

been made to build special hospitals for these groups of long-staying patients, with less offered in the way of ancillary facilities. According to several Swedish sources the construction as well as the operating costs for these hospitals have been reduced somewhere around 60 percent.

One is inclined to assume that total costs, including construction and equipment costs, strongly influence efficiency. But in reality this is not the case. From 1950 up to today, the costs of new construction per bed in Germany have increased approximately threefold—from 10,000-20,000 marks to 25,000-60,000.** At the same time there has been a general increase in construction costs of about 34 percent. And the growth and costly installation of ancillary facilities have also become particularly expensive. Nevertheless, the effect of the total costs on efficiency has been slight, since it has been repeatedly computed that the operating costs equal the construction costs in three to six years. Furthermore, it has been shown in Sweden that a 10 percent reduction in total construction costs achieves only a .6 percent reduction in operating costs.

If, therefore, it is not the total construction costs but rather the operating costs which are decisive, the question is how these latter can be reduced. Foremost, the significant factor in computing operating economy is the cost of personnel. In Germany this item is 50 to 60 percent of the operating costs—and this percentage will probably go up since the tendency toward increasing personnel persists as a result of both intensifications of treatment and the shortening of working time. In 1916, the ratio of number of employees to number of beds was 1:3 for Germany. Today that ratio is 1:1.5. In other countries it is often 1:1—that is, there are as many employees as there are patients. Along with the increase in personnel, the increase in the cost of their maintenance has contributed to raising the percentage of personnel costs.

From management's viewpoint, it is of primary importance to reduce personnel through administrative as well as through structural and technical devices. And here we come to the second index in setting standards—"function." Although efficiency and function are closely related to each other they are not completely congruent. At one point they support each other; at another they work at cross-purposes. We speak of "good function" if a purpose is attained with few measures and by means of clearly planned, smoothly running methods. Stated briefly, the purpose of the hospital is rapid recovery from illness. So our next consideration will be how to accelerate the healing process through organizational and structural measures.

In this discussion we will limit ourselves to the groups of rooms used only by patients in the treatment process—namely, the bed units and the ancillary facilities. We will disregard the remaining four groups of rooms of a modern hospital (those for medical-technical services, for the practical care of patients, for administration, and for personnel) which have only subsidiary duties to perform. We will omit also a seventh group, the rooms for research and teaching which are most often found at university hospitals. These are, of course, independent even though they are functionally tied in with the ancillary facilities.

Contrasting the patient units with the ancillary facilities, what functional characteristics do each exhibit? The patient unit, as we see it in most modern construction and planning, is a simple type. The pattern has been set by demands that sickrooms get the sun from the south and that the entire installation be intensely concentrated. In self-contained, similar nursing stations with about 30 beds there are up to ten or more stories stacked over each other. These are connected by a main traffic vertical unit with stairways and patient and service elevators. The stations offer a vista of the row of sickrooms on the south side, the row of adjoining rooms on the north side, and a broad corridor between them. Although such a station is simple in its basic concept it is important to think it through really functionally, for it is here that the nursing personnel wear themselves out from morning till night. Errors in the design cause serious damage daily. The duty of nursing personnel is above all else bedside care, which should not be hectic but calm.

Hallways between the various nursing stations cannot be avoided. One is confronted therefore with the regrettable fact that qualified workers tire themselves out more in moving about than in actual care. The resulting demand for minimizing the number of steps is one of long standing and many devices have been tried in order to satisfy it. One such device we could mention here is to reduce the over-all length of the nursing station, and with it the sum of the corridors, through the format of the individual sickroom. Obviously, if three beds are placed in a room instead of two, the capacity of the room is increased and the over-all length of the nursing station—and with it the corridors—is substantially reduced (figure 8). Structurally, the bed unit presents no problem since our usual construction of rows of rooms is applicable. Finally, other solutions to the bed unit present themselves if one ignores the requirement that sickbeds must face south.

The ancillary facilities are basically distinguishable from the patient area by virtue of the fact that they are all different in themselves. If there is a demand for space by the service functionaries in every individual installation, various foundation plans may be employed, of which one is longer, the other squarer, and for

**A mark is worth about 23.9 cents on the current exchange.—*Trans.*

which sometimes this, sometimes that, span may be suitable. Each of the many medical specialists in a general hospital needs the ancillary areas required by his particular discipline. Besides, the general treatment rooms, especially the x-ray and physical-therapy groups, must be considered. In addition, the duty of coordinating treatment rooms both organizationally and structurally becomes more difficult when an outpatient facility is involved. The unit which treats patients who are not staying in the hospital, who are there only partially for specified access to equipment and partially for treatment in the rooms of the medical specialists, has not been developed as drastically in Germany as in the Nordic countries. In Sweden three times as many outpatients as inpatients are treated.

The type and scope of an ambulant facility depend upon many factors. Apart from the x-ray division and the physical-therapy section, this facility generally includes special rooms for emergencies, and the larger installations often have a fully equipped minor operating room. Whether the ambulant facility also includes medical specialist treatment rooms depends substantially on the physicians working there. The teamwork customary throughout Anglo-Saxon and Scandinavian countries has not yet been developed to such a high level in Germany. Most medical specialists are in favor of a close connection to their nursing stations rather than to the treatment rooms of other medical specialists. In fact, it is not considered a serious shortcoming if the rooms are located on a different floor. In the current heated discussion over this concept of separation, the opposition says: the greater progress there is in specialization—in which constant development of new insights is indispensable—the more important it becomes for specialists to work together. This demand for teamwork is not consistent with a separate location of treatment rooms on several floors.

Of importance to management is a well-thought-out traffic plan for the hospital. The interdependency of movement is so complex that just a few points can be mentioned here. Only those persons who have business in a division or station should be permitted there; all others who enter these areas interfere with their management. The routes taken by visitors, ambulants, or inpatients, as well as for the delivery of food, laundry, and so on, should be either separated or on a different time schedule. (Unfortunately, however, economic considerations do not permit an absolute enforcement of this principle.)

Elevators are indispensable in a modern hospital which is totally designed as one building. A vertical positioning, with convenient elevator communication, eliminates long horizontal passageways. By using an elevator one can pass through stations and groups of rooms without disturbance—something that is not possible with horizontal traffic passing through. Again, with an elevator, as contrasted to a horizontal passageway, the length of the passageways is not important either in time or in relation to the work being done.

A hospital's structural and technical installations are often outdated after a short time because medical methods have changed. By contrast, modifications in the patient areas are rare and are not as radical; any required changes usually affect only the number of beds within the patient unit. Incomparably more rapid and drastic are the changes in ancillary facilities as methods of treatment change incessantly and new ones are introduced. Forty years ago we thought we had discovered the ultimate form for the operating suite. Today it looks completely different. Nowadays, instead of a simple line-up of rooms space requirements are computed in relation to the new actualities.

As an example of this, the Boucicault Surgical Clinic in Paris (figure 9) specifies different traffic routes for the delivery and return of instruments, for physicians, and for patients. For operations, patients are put to bed on a stretcher in the preparation room and are brought on it to the operating room. After surgery the patient leaves the OR on the operating table and is put back to bed in a roomy passage. In the meantime, another pa-

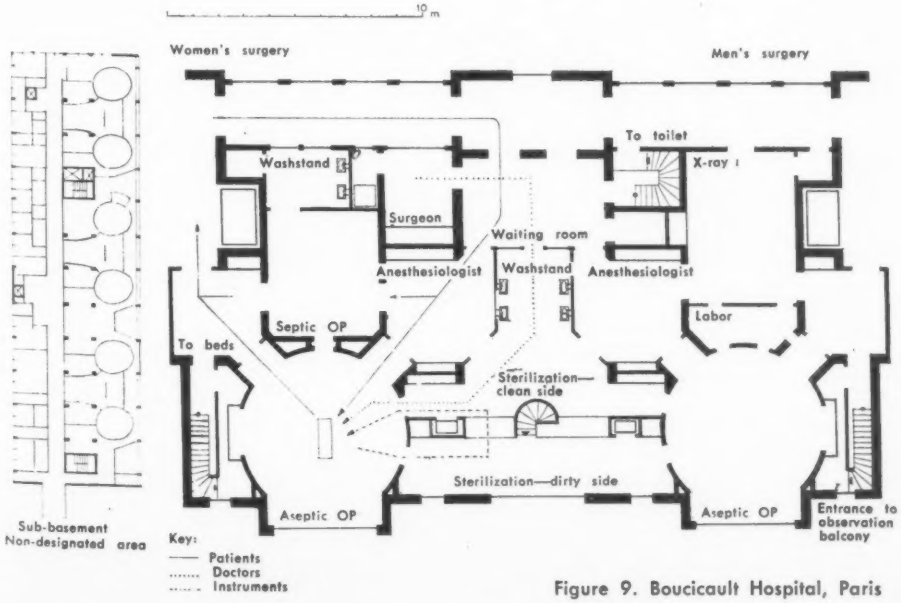


Figure 9. Boucicault Hospital, Paris

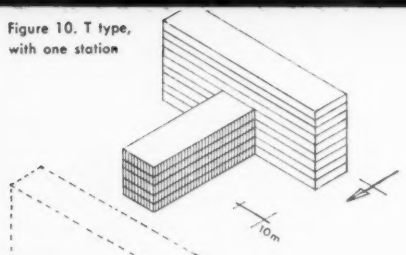


Figure 10. T type, with one station

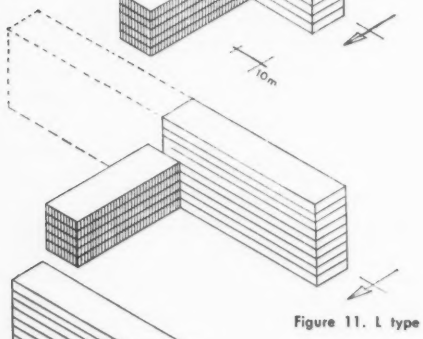


Figure 11. L type

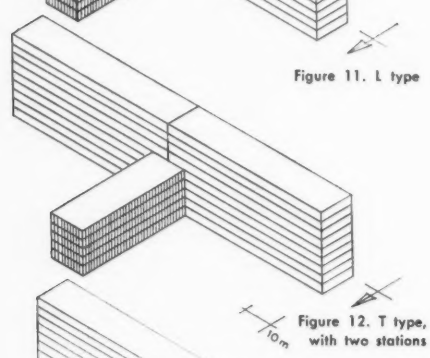


Figure 12. T type, with two stations

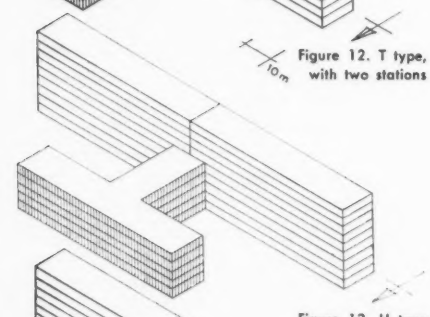


Figure 13. H type

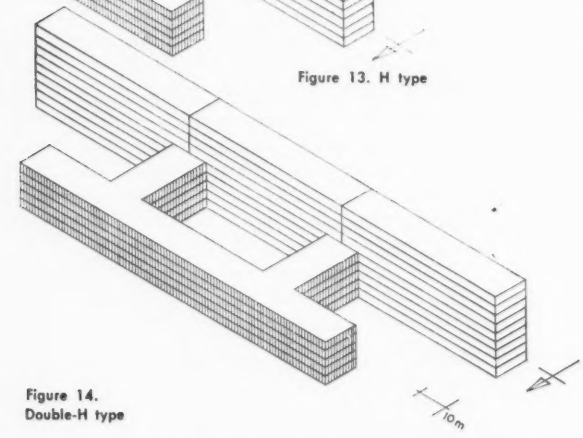


Figure 14. Double-H type

tient can be placed in bed on a second operating table in the preparation room. In this manner operations can be continuous. In the operating and adjoining rooms numerous pieces of apparatus can be set up to influence and supervise the living processes of the patient in connection with major operations, especially heart operations. In addition, the many assistants have plenty of room to work. Such a setup was hardly possible in earlier operating-room installations.

A variety of professional and practical demands has led to a number of different structural types. In common, the first types all linked a multi-storied bed building to a likewise multi-storied treatment wing. The form of the foundation was a T, an L, or an H, depending on the type of connection. The T type with just one station in each story has particularly short passageways to the treatment facilities since these are connected to the middle of the stations (figure 10). It is, however, used for small hospitals only. If the treatment building is linked to the end of the station, the L type appears (figure 11). The long passageways in the L do have one advantage in that the structure can easily be expanded to a two-station T (figure 12). This latter type is well suited to the 500-bed hospital and has been so utilized quite frequently. The midjunction of the treatment building in the H-form is useful in regard to the length of passageways if the treatment facilities are very comprehensive (figure 13). For extremely large hospitals this type can be expanded with the double-H (figure 14).

All these types attempt the shortest possible connection between nursing station and related ancillary facilities by having both arranged in one story. This principle, however, cannot always be carried out because so many ancillary facilities belong to more than two nursing units that the number of patient-area stories often becomes considerably greater than that of the ancillary building. As a consequence, a substantial number of stations now have vertical passageways with the elevator as an integral part. In addition, the general ancillary facilities are used by all stations, which again makes elevators necessary. The elevator is further utilized each time ambulant patients must travel to the necessary floors for treatment in the offices of the medical specialists.

The multi-storied ancillary building has a disadvantage in that space requirements of the most varied kinds and sizes must be erected one over another and must be incorporated into a unified structural framework along with all the entrances and exits. It is difficult to avoid organizational deficiencies in such a structure because every floor with its sharply delimited available area is either too large, too small, or in an unsuitable form. It is, furthermore, difficult to find divided and clearly arranged entrances if two small installations are placed one behind the other on one story. And in addition, the ceiling height of the rooms in the ancillary wing (other than the top story) is determined by the height of the patient areas.

Many of these disadvantages in the ancillary building

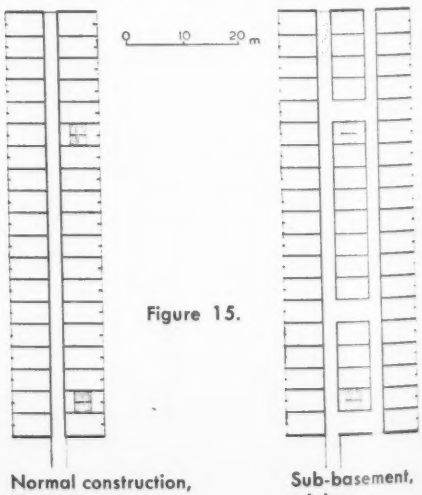


Figure 15.

Normal construction, double

Sub-basement, triple

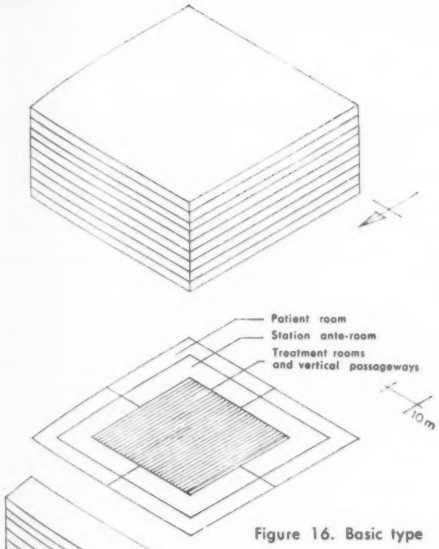


Figure 16. Basic type

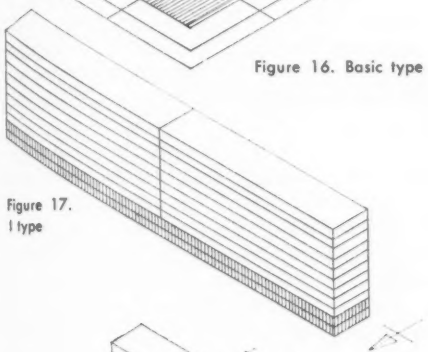


Figure 17.
I type

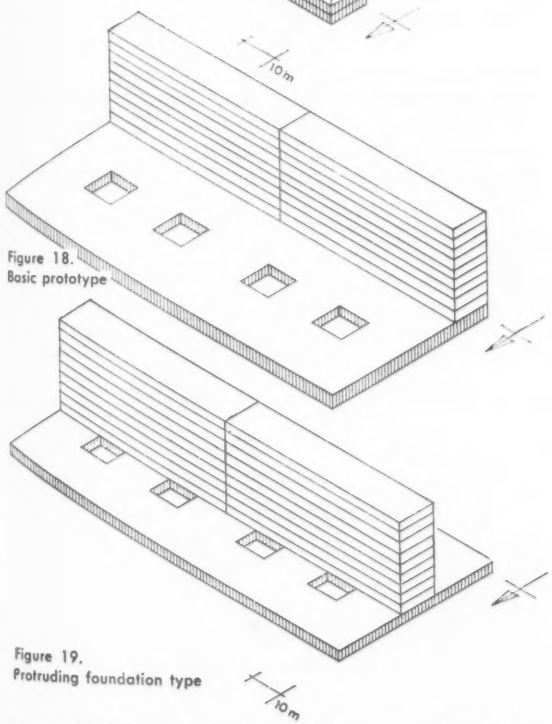


Figure 18.
Basic prototype

Figure 19.
Protruding foundation type

are avoided by building a sub-basement (figure 15). In order to attain broader floor space with requirements which run counter to the free development of ancillary and service facilities, a triple facility has been created. The two extra rows of rooms are so broadly spread out from each other that an inner room devoid of daylight, with a double corridor, is created. From a structural and economical point of view, the skeleton of this installation is made as wide-meshed as possible in

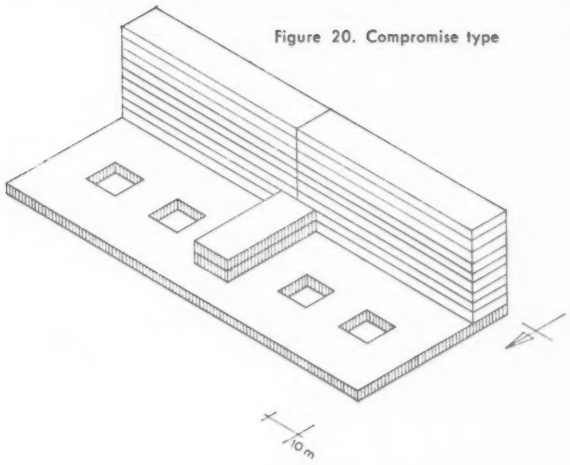


Figure 20. Compromise type

order to vary the foundation plan so that on one side the outer and inner rows of rooms hold together somewhat as a spacious combination. It should be said, however, that despite the greater flexibility of this plan the disadvantages which arise from similar and inflexible floor surfaces on all stories are still present.

A special form of the principle of having ancillary patient areas on the same level as the nursing stations is the concentric type which has been carried out chiefly in the United States (figure 16). Although this type has short corridors, the sunlight has no access to part of the bed wing, and the natural light and ventilation in the treatment and personnel rooms in the core are dispensed with. This disadvantage is accepted in America, in exchange for the shorter corridors, since the shortage of personnel in that country is especially noticeable.

An entirely different structural system is that of the I type (figure 17). It has the advantage of very short corridors. All main connections are vertical and with the help of elevators are easily installed. However, on a large scale this type has all the structural and technical disadvantages which have been pointed out with the ancillary services of L, T, and H types. The result is that the axis of the differentiated treatment facilities is dictated by a towering building containing the patient floors.

Finally, the basic prototype may be cited (figure 18). The bed building and the sideways-positioned, horizontally spread-out treatment building are clearly separated and are structurally independent of each other. The supports and the height of rooms in both the treatment building and the surrounding installations can be varied easily according to differing requirements. Since every desired ceiling height is available, large, support-free rooms can be created in which the ancillary services can be developed as needed in each particular case. Alterations, completion, and expansion are more readily possible. Inner courts provide good ventilation and light, and this can be supplemented by light cupolas. Organizationally, this type offers the great advantage of a clearly arranged traffic layout in the corridors for both patients and professional personnel. Ambulant patients can travel directly from the ground-floor entrance to the ancillary areas. A clear and convenient traffic pattern can also be provided for the inpatients.

Arranging the ancillary facilities near each other in

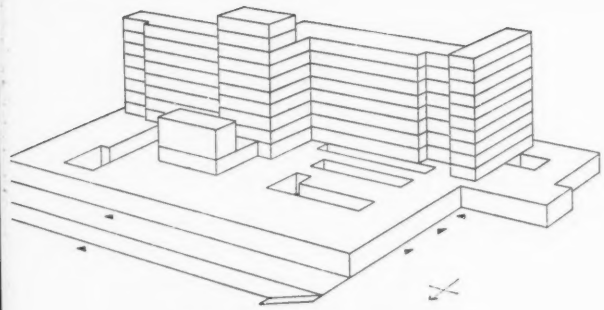


Figure 21. St. Lo Hospital, France

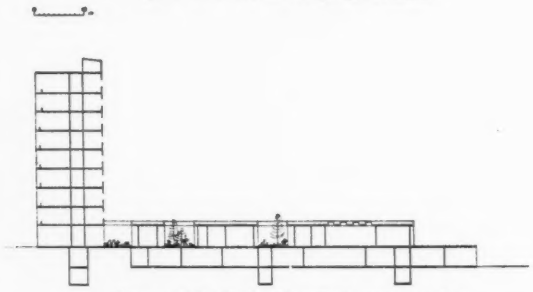


Figure 22. St. Lo Hospital, cross-section

one (or at most two) levels creates an ideal situation for the medical specialists' teamwork. Of course, if the ancillary area should spread out too far the horizontal corridors become very long. But this disadvantage can be avoided if the low ancillary building is placed under the patient areas (figure 19). This arrangement has a disadvanage in that one looks from the side rooms on to the roof of the protruding anciliary building; but this should not be of too much concern for most bedridden patients, particularly short-stay ones.

A more serious objection to this kind of layout is a surgical one—the operating-room suite is separated from recently operated-upon patients by an elevator. In order to avoid this deficiency a compromise has been developed between the basic and the T type whereby the operating-room suite is placed over the low building at the height of the station for patients recently operated upon (figure 20). A multi-storied T-piece can be provided if the gynecologists (or other medical specialists) prefer.

In recent years the medical clinic in Tuebingen and the surgical clinic in Duesseldorf—among others—have been built in the form of this compromise. As a remarkable example, we cite the organizationally ideal St. Lo Hospital in France which was completed in 1948 (figure 21). It is one of the first hospitals to be constructed purely as basic prototype. The flat ancillary buildings lie near the patient areas. The maternity suite is raised from and positioned near the gynecological division, on top of which are the air-conditioned rooms. The patient unit has nine stories. The ancillary services lie in the flat building on one level, with the kitchens, and so on, underneath (figure 22). Situated beside each other on both sides of a vertical passageway in the upper stories are two nursing stations. This passageway is the mid-point of the building and is repeated in the lower stories. The little attached wing on the west contains personnel living quarters. The view from the roof of the flat building shows garden courts and glass cupolas which illuminate the ancillary facilities (figure 23).

In the ground-level treatment building two main passageways connect by means of elevators to the patient unit lying over the southern part of the flat building. Individual ancillary areas are introduced in this abridged diagram only in outline. They are near the elevators if they belong principally to the patient units

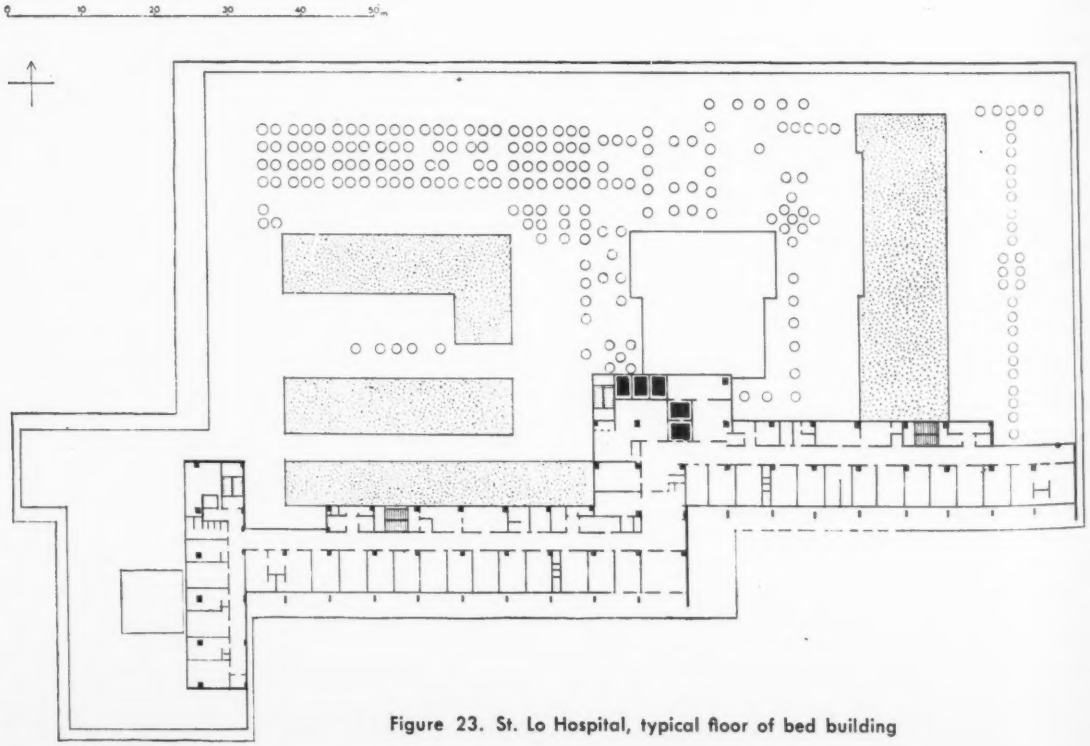


Figure 23. St. Lo Hospital, typical floor of bed building

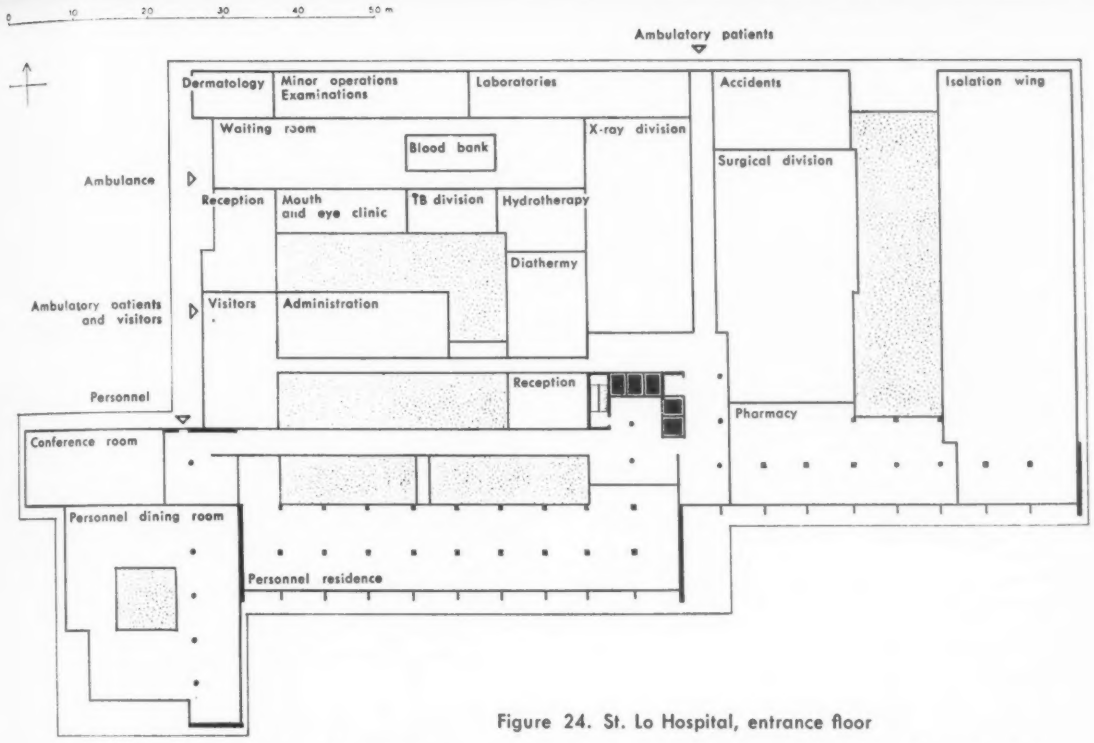


Figure 24. St. Lo Hospital, entrance floor

(the operating suite, for example) and near the entrances if ambulant traffic to the clinics is heavy. The x-ray department is the linking member of both groups (figure 24).

The last plan (figure 25) shows the abundance of individual rooms in which the ancillary facilities are now divided entirely according to their purpose.

Of course, the basic prototype is not applicable to all hospital building. An infinite number of factors bear on new institutional construction, and besides size and style the plot's topography must be considered along with the surroundings, type and number of medical specialty divisions, and—not least—the point of view of the doctors working there. In every individual case, medical, financial, and structural-technical points of view are to be thoughtfully evaluated, one against the other, in order to arrive at the correct structural type.

The preparatory work which a client and architect must undertake from the beginning of any construction planning is not always as difficult as it is in the case of hospital construction. But there must always be a many-faceted thinking through of the functional and the practical. The design must be governed by the laws of function and costs. One can only hope that the architect does not run out of breath over the long pull and that he may succeed in giving to his hospital building in which human beings are cared for a spirit which refreshes their souls.

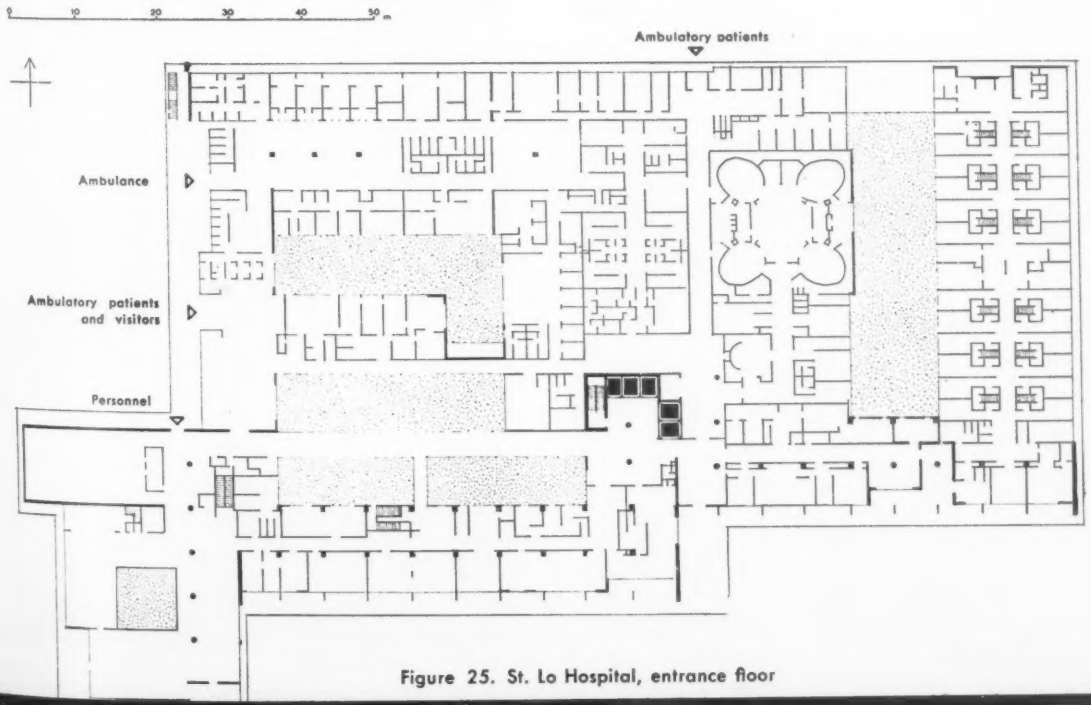


Figure 25. St. Lo Hospital, entrance floor

First Steps In Fire Defense

By Robert McGrath*

To show that the correct method is more important than the brawn of the rescuers, the author stages a demonstration like this one, held in Danville, Pa. Two tiny nurses from Geisinger Memorial Hospital use the swing carry on the 220-lb. McGrath.

All fire programs should be based upon sensible and simple measures of defense. Too much time has been devoted to massive disaster planning; too little time to preparation for handling problems which may arise any day.

Before experimenting with any type of mass evacuation, it is first essential to learn what steps are necessary to save one life, and to snuff out a small fire in a bed or basket. Because nurses are likely to be the first on the scene when fires occur in patient areas, it is especially important that they know what to do.

At fire-training institutes in 200 cities, nurses have indicated that they are far more receptive to practice than to theory. They agree that better understanding develops from actually participating in the realistic training patterns which they helped to plan and organize several years ago.

Hospitals are as responsible for patient care in time of danger as during the routine hours. Unless employees are familiar with the building layout, with the location and use of extinguishing materials and equipment and the application of suitable removal technics, they are not prepared to cope with a fire problem.

It may be helpful to review briefly a few important facts about fire before discussing the four steps which become most important when a fire occurs.

Fire is the chemical reaction which results from the union of heat, fuel, and oxygen. It is the active principle of burning or combustion manifested by the evolution of heat and light. Fire is extinguished by remov-

*The author began giving special instruction courses in fire-fighting technics for hospital personnel more than six years ago, when he was a lieutenant in the Chicago Fire Department. After his retirement he continued to present these courses, in response to widespread interest. Several of them are scheduled in various cities this fall.

In Boston, student nurse from Boston City Hospital makes packstrap rescue through fire on both sides of a simulated doorway.

Firemen watch nurses from St. Nicholas Hospital, Sheboygan, Wis., demonstrate a quick hip-carry removal of one person by one nurse.

Team of four nurses at St. Nicholas Hospital, Sheboygan, Wis., swing out with patient held rigid in ordinary blanket.

Institutes were started primarily to teach nurses how to fight fires. However, at Connecticut State Hospital, Middletown, Conn., male personnel trained right along with the nurses.

ing one of the three necessary ingredients. Oxygen is taken away by smothering; heat is taken away by wetting; fuel is taken away by removing the burning material.

Fire prevention, basically, means isolating one or more of the three elements needed to support combustion—keeping them apart. This is done by good housekeeping—cleanliness and order; by proper storage of hazardous solids, liquids, and gases; by safe practices, by caution and alertness, and most important, by continuing education. Most people respect safety rules and regulations if they are acutely aware of cause and consequence.

Fire protection is a term used to describe the physical aspects which make our buildings safer and are designed to prevent, retard, or extinguish fire. In this category are steel and concrete construction, noncombustible materials, enclosed vertical openings (stairwells, elevators, linen and trash chutes), fire doors and smoke barriers, fire excapes, exit lights, fire-alarm systems, sprinklers, extinguishers, and hose lines.

Fire preparedness in the hospital means the ability to adjust mentally and physically, calmly and skillfully, to an unexpected and dangerous situation, and to apply predetermined methods to a particular problem, or subsequent development. It means knowing the necessary step-by-step mechanics of rescuing patients, activating assistance, fighting the fire, and, if indicated, evacuating wings or floors. Preparedness results from training backed up by written procedure based upon that training.

The most common causes of fires in hospitals are smoking and careless use of smoking materials, which cause 21 percent of all hospital fires. There is an average of three potentially serious hospital fires every day, not counting minor or unreported fires.

The second major cause is electrical in nature. At least 10 percent of hospital fires are caused by faulty wiring, overloading or overheating, or defective equipment or installation.

Panic is a bigger killer than fire or smoke. It engulfs people who do not know what to do, or where to go. It is contagious and spreads rapidly as more and more people realize their helplessness. Panic in personnel will accelerate patients' panic. The best preventive is the presence of trained persons who can take charge of a situation and render calm, competent directives.

What to Do When Fire Is Detected

When a nurse detects fire, there are three duties she should perform. They are interrelated, and the circumstances may dictate a change of sequence.

1. **Remove the patient or patients in immediate danger.** This may mean moving the patient from bed to floor, from bed to corridor, or from floor to corridor. Use a blanket on the fire first, before handling the patient, if necessary. *Do not* remove the beds from the fire room into the corridor.

2. **Turn in the alarm so that the switchboard can relay the alarm to the fire department, and alert inside response.** Sometimes it is necessary to call the fire department directly, giving the correct address and the exact floor and area. If you see smoke coming from a room and you have to pass the alarm box en route, pull the alarm first. *Do not* let a patient lie in fire while you travel in another direction for the alarm.

3. **Fight the fire with whatever equipment or ma-**

In Dayton, O., a student nurse at St. Elizabeth's Hospital gets her first feel of a soda acid fire extinguisher, as instructor McGrath guides her.

Nurse at Western Pennsylvania Hospital, Pittsburgh, shows how carbon dioxide extinguisher is held and used on fires near floor.

Nurses smother liquid fires with single sheet of newspaper which excludes oxygen support. (picture taken at Western Pennsylvania Hospital, Pittsburgh).

terial is adequate at the moment. This might mean a blanket or sheet. Fire goes up; so getting a patient to the floor may mean saving his life. In electrical fires, or liquid or gas fires, the main move is disconnection. Key phrases to keep in mind are: "pull it out," "turn it off," "shut it off." In a tent fire the oxygen should be shut off first to reduce the high flames to mattress level, and then a blanket or sheet used to smother the surface fire. The patient should be put on the floor.

The three primary steps, then, deal with (1) the patient, (2) the alarm, and (3) the fire. The fire-fighting might be a progressive operation, from blanket to extinguisher to hose line. The hose line is employed whenever there is too much fire for two extinguishers to put out. If heat and smoke conditions prevent subduing the fire, the transom and the door should be closed and the threshold sealed with a wet towel or blanket.

The fourth and final step is *evacuation*. This calls for a general alarm with activation of all personnel to take over predetermined positions and duties. The disaster plan replaces the fire plan. Patients have already been moved from the original fire room with carries or blanket drags. It was necessary to move them only as far as the corridor and the first few people responding were able to handle this phase.

Now, however, these patients and all others in the area must be moved to safety, by bed, blanket, cart, or carry, to an area beyond fire doors or smoke barriers; into another section or building; or at least to the opposite end of the corridor. Initial evacuation is always horizontal.

If the corridor is open and unprotected with cutoffs, one should move toward an enclosed stairwell, or at least toward the most remote open well. If both the corridors and the stairwells are open and unprotected, it may be necessary to use outside fire excapes, or, as an extreme last resort, to depend upon ladder rescue.

Patients can be evacuated vertically with the two-man swing carry and with three-and four-man blanket carries. Vertical retreat is possible also on safe elevators—those isolated from the fire area and declared safe by the proper authority.

Any horizontal movement should be so deployed that it can be changed immediately into vertical movement. Crowding beds and occupants of two or three zones into a fourth may interfere with the downward traffic. In fire-resistant buildings, safety can usually be found on the floor below the fire, but it is preferable to descend two floors, leaving the higher areas open to fire-department activity.

Ambulatory, wheel-chair, and bedfast patients should be evacuated in that order. Twelve or more infants can be carried horizontally in a single blanket, or vertically by folding one end of the blanket back so as to form a pocket for the feet to prevent sliding.

Evacuation is a large-scale operation which may be avoided if enough people know what to do at the original fire scene. Nurses and other personnel should work in teams of four, with each team in charge of a nurse who has had some training in fire-fighting, or who has observed some training demonstrations.

Fires have been known to pass the control stage in five minutes. Help can arrive from the fire department in three minutes or more. In those first few minutes, prompt action by trained personnel may save many lives.

At St. Elizabeth's Hospital, Dayton, O., nurse uses blanket to smother fires. "Patient" is instructor McGrath.

In team action at end of program, nurses at St. Mary's Hospital, Cincinnati, show that they've learned about how to fight fire and rescue patients.

Consultant's Corner

By John G. Steinle

Q. Recently you wrote an article on how to conduct a meeting. Would you please make some suggestions on how to attend a meeting?

A. I have found that one's deficiencies are usually brought out at meetings. The man who is generally inclined to talk too much talks twice too much at a meeting. Unfortunately there are certain types of people who are completely rational and agreeable in their direct personal relationships, but immediately change, when they are exposed to a number of people at a meeting, to impossible, difficult, cantankerous ogres.

My primary suggestion is that a person who is concerned about his behavior at meetings should very carefully analyze his attitudes and actions at meetings. If he finds that he is inclined to be afraid to speak up he should make a careful effort to announce his opinions. If, on the other hand, he finds he is monopolizing the discussion, he should make a very careful effort to control his monologues.

One way to arrive at a basic conclusion regarding whether or not he adequately participates in a meeting or whether he is inclined to monopolize it is to actually time all the conversations and discussions in order to identify the percentage of time he has taken. If it is disproportionate in one direction or the other, corrective therapy is indicated.

I find it very difficult to make observations regarding a person who does not adequately participate in a meeting, because my fault has always been that I talk too much. I have made a careful effort to control my tendencies to participate excessively. I now wait to see whether the points which I would like to bring up on any given subject are covered more or less adequately by someone else. Other people are thus given a chance to participate first.

Another method which I have found to be very useful is to occupy myself with other activities while I am listening to the discussions—making notes, drawing sketches of the partcipants in the meeting, and developing definitions of the items discussed. For example, here are some definitions which I prepared at a number of meetings which I attended last month:

Glossary for Meetings

(From a meeting of a hospital board)

Professional agreement: What two doctors agree the third doctor should give to the hospital fund.

Professional conduct: Not asking a fellow physician to give to the hospital fund.

Physician: One who uses the hospital but does not pay for it.

Fund drive: What others do to raise money for the hospital to be used by the doctors.

Quality of medical care: (1) An excuse for having a deficit; (2) an explanation by the doctors for not giving to the hospital fund drive; (3) a justification for anything else in the hospital.

Financial report: An unrelated group of figures that always (1) shows a deficit and (2) assures that things will be better.

Expansion program: A plan to increase the number of beds because the present loss per bed is too great.

Treasurer's report: An explanation of why there is not enough money in the bank to pay the bills.

Board of trustees: A group of people who regularly give money to the hospital, expect the highest quality of care at the cheapest price, require that the hospital provide every community service at no additional cost, and demand that there not be a deficit so they no longer have to give money.

Administrator: Someone who confuses everyone, everything and everybody.

President of the board: A person who stands in front of the other board members and talks too much.

Consultant: Someone who blows in, blows off and blows out. An obnoxious character from outside the community who has an expense account and a briefcase (the latter a protection from a vagrancy charge).

Expert: Latin—(ex) from; (spert) a fast drip. Thus, from a fast drip.

(From a conference with an architect and a building committee)

Alternatives: No one can make up his mind.

Detail: Something no one wants to bother with.

Experience: An impressive list of mistakes.

Natural setting: A tree in front.

Utilitarian needs: A scrub mop.

Creative design: Impressionist drawings.

Building committee: Group concerned with cesspools, swimming pools, and dishwashers.

(From a conference with nurse educators in a "university setting")

Seminar: An exchange of ignorances.

Interdisciplinary: No one is responsible for anything.

Participation: Everyone talking at once.

Social dynamics: Verbal explosion.

Head of an academic department: Part-time teacher.

Spreading ourselves too thin: An excuse for not doing something.

A secure person: A lazy bum.

Academic affairs: Nebulous things to talk about at the next meeting.

Review of Hospital Lawsuits

By Leo T. Parker, Attorney at Law

• LIABILITY FOR INCOMPENTENT DRIVER

If a hospital ambulance driver gets drunk and has a wreck, can the persons injured sue the hospital and get damages?

A few weeks ago a higher court ruled that a hospital which employs an "incompetent" driver of a motor vehicle is liable in damages for injuries caused by the driver. In *Krausnick v. Haegg Co., 20 N.W. (2d) 432,* the testimony showed that a boy 5 years old was killed by an automobile driven by an intoxicated driver. The court said:

"The owner of a motor vehicle may be held liable for a resulting injury to a third person upon the ground of negligence if he knowingly entrusts its operation to an inexperienced or incompetent driver."

The court added that when an employer entrusts an automobile to a known incompetent driver, the employer always is liable, even though the particular use at the time of the injury was beyond the scope of the employer's consent.

For comparison, see the case of *Waddle v. Stafford, 230 Pac. 855,* in which a higher court stated: "It is the duty of a man to see that his automobile is in the hands of a skillful and competent person."

Other higher courts have held that a person whose eyesight is defective and who wears no corrective eyeglasses may be incompetent; that a highly nervous person probably would be held to be an incompent driver; and that persons who are insane, intoxicated, under the influence of drugs, deaf, paralyzed, or naturally reckless are incompetent drivers.

MUST PROVE NEGLIGENCE

A higher court recently ruled that a charitable hospital may not be immune to suits filed by patients who are injured as a result of negligence of the hospital employees. But at the same time it laid down the law that a patient who charges that he sustained an injury because of incompetency of hospital employees must prove specific negligence.

The case of *Stann v. Oakwood Hospital, 105 N.W. (2d) 20,* was a suit brought by a man who was injured while employed by the Ford Motor Co. He was given a physical examination by a company physician and permitted to return to work. However, his condition became progressively worse. He was hospitalized, and an operation was performed to alleviate a condition resulting from a ruptured disc. Mr. Stann sued the hospital for $100,000 damages, claiming that because of inefficient hospital employees he sustained injuries to his person, causing pain and suffering, the incurring of expense, loss of earnings, and a general condition of mental and physical weakness and disability.

The lawyers representing the hospital argued that the hospital corporation could not be held liable because it was organized and operated exclusively for charitable, scientific, and educational purposes as a nonprofit corporation. The judge refused to hold the hospital corporation not liable on this plea.

Nevertheless, the higher court refused to hold the hospital liable because, it explained, in cases of this kind, the injured person cannot recover damages unless he specifically proves that a particular employee was inefficient and incompetent, and that the injury resulted from this employee's negligence. The court said:

"The only specific duty that the hospital was charged with having violated was to employ 'competently trained nurses, physicians, surgeons, interns and other employees.' There was no showing, however, that any employee of the defendant hospital was incompetent."

DUTY TOWARD PATIENT

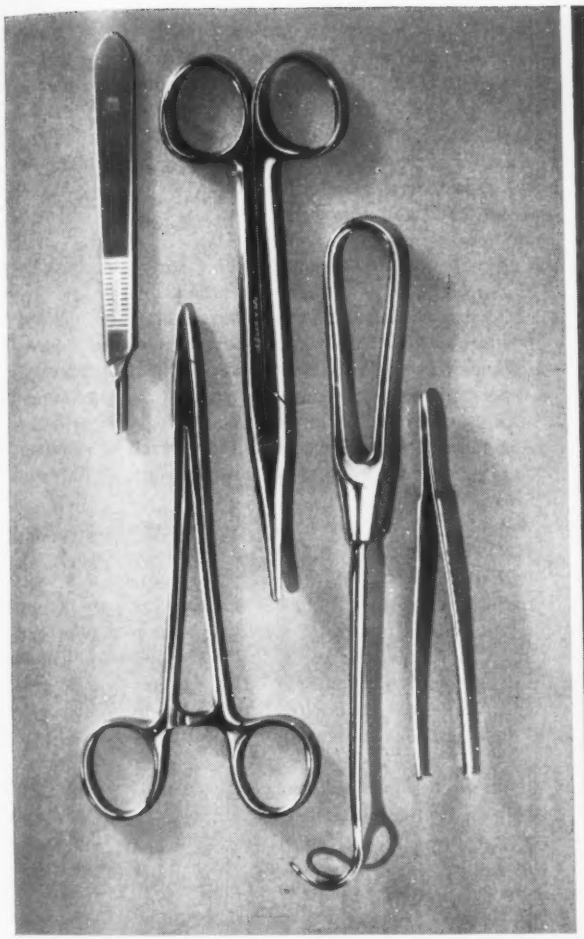
Modern higher courts consistently hold that a patient admitted to a public hospital is entitled to such reasonable care and attention for his safety as may be required by his mental and physical condition. But that duty does not require the performance of every act by hospital employees.

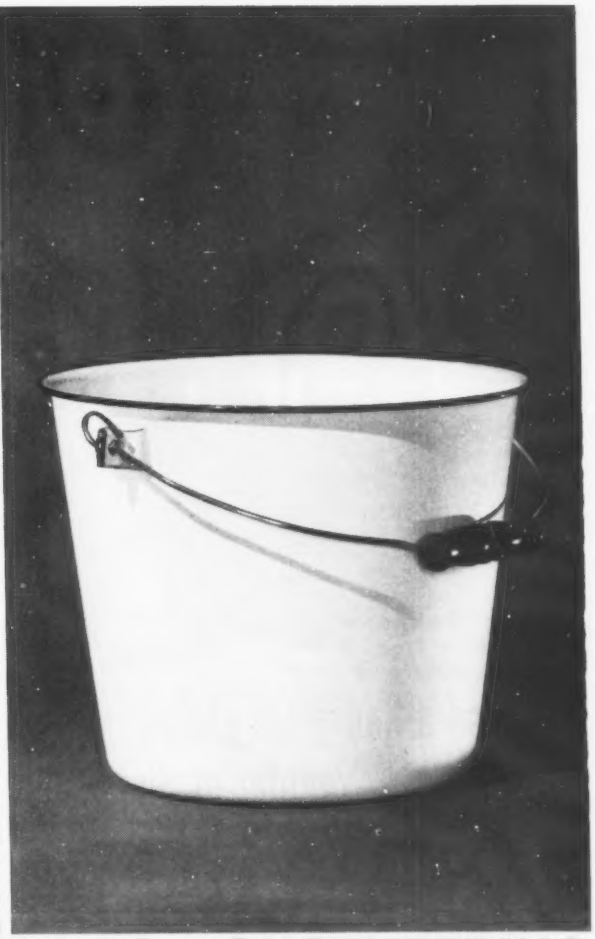
In the case of *Miners Memorial Hospital Association v. Miller, 341 S.W. (2d) 244,* the testimony showed that Mrs. Miller fell and broke her wrist while attempting to climb into her bed at the Miners Memorial Hospital Association's hospital. She was awarded damages against the hospital on the theory that the accident and injury resulted from the hospital's failure to provide reasonable postoperative care. However, the Miners Memorial Hospital Association appealed to the higher court, and proved that:

The patient was in the operating room from 9:50 until 10:30 in the morning and was then removed to the recovery room. During her 30-minute stay in the recovery room, under the care of a registered nurse, she was checked by her physician and was then sufficiently conscious to answer questions, tell her name, and indicate she knew she was in the hospital. She did not have a special nurse, but her husband remained with her until about 2:15 p.m.

Between 11 a.m. and 2:15 p.m., she made two trips

(Continued on page 50)





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Wescodyne is formulated with "Tamed Iodine." It non-selectively destroys bacteria, viruses, spores, fungi, *even resistant types of staph.*

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W

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process all surgical gloves ...regular or disposable for less than 1½¢ each

By far the lowest cost, most dependable method for washing, drying, and powdering rubber gloves...yes, even "disposables". Less than 1½¢ per glove including all materials and labor! Three companion, single-purpose machines, each with 150-glove capacity, eliminate delays. No waiting between loads. All stages of processing can be carried on simultaneously. And glove life is materially extended... reducing need for large inventories.

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WASHER—The only machine designed specifically for surgical gloves. Unique tub design and pulsating action clean gently, thoroughly... three times faster than by hand.

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to the bathroom, with the assistance of her husband. At some time after 2:15 p.m. she went to the bathroom unassisted. At that time another patient in the room said to her, "If you want to go to the bathroom again, you should call the nurse," but Mrs. Miller replied, "I can make it." On her return she attempted to climb into bed by stepping on a small traveling bag. In so doing she slipped or lost her balance and fell on the floor.

In view of this testimony the higher court reversed the lower court's award of damages, and said:

"There was a pushbutton arrangement on the bed whereby Mrs. Miller could have summoned a nurse. There was no proof that it was customary to furnish special care upon return of a patient from the surgical recovery room nor was there any evidence of special or unusual conditions which might have indicated such care to be necessary or advisable in Mrs. Miller's case."

On the other hand, employee negligence was clearly involved in the case of *Hicks' Administratrix v. Harlan Hospital, 21 S.W. (2d) 125.* The patient was having difficulty in respiration after surgery, and the surgeon instructed the head nurse to keep the patient's mouth closed. A succeeding nurse, to whom the instruction was relayed, negligently allowed the patient to strangle to death while she sat on the bed talking to other persons in the room. The higher count held the hospital corporation liable in heavy damages to the patient's dependents.

Other cases in which hospital corporations were held liable in damages for negligence of employees resulting in injury or death of a patient include: *Hayhurst v. Boyd Hospital, 254 P. 528,* in which an attending nurse left a recuperating patient in a chair by an open window for two hours, and the exposure resulted in pneumonia with further complications; and *South Highlands Infirmary v. Galloway, 171 So. 250.* In this case, several minutes after a 78-year-old patient returned from prostatic surgery, the special nurse assigned to watch over him left the room to make entries on a chart. During her absence the patient fell from the bed and broke his thigh. The hospital corporation was held liable for the nurse's negligence.

"Here comes the fastest gun in the west wing."

Hospital Accounting and Statistical Problems

By David H. Tarlow, C.P.A.

Q. We would appreciate your guidance in describing what you consider an adequate schedule of patients' accounts receivable. This is prepared both for control purposes and for the credit and collection department.

A. If you are to meet the total needs of administration the schedule should contain the following:

Name of account.
Balance due as at schedule date.
Date of discharge.
Date of last payment.

In this connection, it is also well to note that accounts which are covered by notes receivable should be reported under a separate heading. Any accounts which are in the hands of a collection agency and are contained in the listing of outstanding accounts receivable should be identified by an asterisk or other special mark.

Q. What is the purpose of a cut-off bank statement when you have a bank reconciliation ready for the auditor?

A. There are some weaknesses in a bank reconciliation even though the bank balance is reconciled to the book balance.

1. Since the list of outstanding checks is prepared from the books of account the recording may be in error as to amounts.
2. Certain checks may have been drawn before the reconciliation date and not recorded on the books of account.
3. Deposits in transit listed on the books of account, which form part of the reconciliation, may be in error.

A cut-off statement requested from the bank about 15 or 20 days after the reconciliation date would disclose any of the foregoing shortcomings. As a rule, all of the outstanding checks, with a minimal exception, would be cleared through the bank at that time and the deposit in transit reported on the bank statement.

Q. In a recent issue of HOSPITAL TOPICS you presented a plan which would permit voluntary hospitals to provide a tax free annuity program for certain employees. I believe this included the administrator, radiologist and pathologist. May I ask if this could be done for our radiologist if he were a part-time employee? He is at the hospital each morning and stays until all the films are interpreted and any therapy treatments, requiring his presence, are completed.

A. Part-time employees, in the category mentioned, are included in Section 501 (c) (3). Rules for crediting part time, or intermittent service, have been promulgated in the Treasury Department regulation TD 6335. The formula for computing the sum deductible for the purchase of annuities would be different than that of a full-time employee. The years of service and the last four years' salary are the key factors in this determination. We would suggest that you confer with counsel in setting up the agreement.

Q. What is the practice of other hospitals handling amounts chargeable to Blue Cross, city or county welfare agencies, or other organizations which are under contract with the hospital to pay for certain services at a set rate? Are such amounts transferred from the patient's account to an account for the debtor organization when it is determined that the patient is eligible under the contract or is the patient's account credited directly with payments by the organizaion and then adjusted for increase or decrease on the contract irrespective of the amounts chargeable to or aid by the patient?

A. Accounts are maintained for each patient on individual ledger cards. In some hospitals they are kept in separate box files or drawers or are printed on different color cards as such relate to the third-party payer per se in the general ledger. The analysis of accounts transferred to the account of the third-party payer prese in the general ledger. The analysis of accounts receivable at the close of each month, however, does classify the balance of the accounts into the various categories.

In one area of the country we have found that Blue Cross will withhold 10 percent from the amount due the hospital until the close of the fiscal year. At such time the amount may or may not be paid in full depending on the financial report of the institution. This Blue Cross agency pays the lower of cost or charges based on audit. During the year they pay 90 percent of billed charges. In this case the patient's account would be credited with the full amount of the bill and the 10 percent withheld set up as an account receivable due from Blue Cross.

Q. We have had a problem in satisfying a patient's claim for loss of personal property during her stay at the hospital. Are there any set procedures for checking patients' valuables?

A. The American Hospital Association's Manual of Admitting Practices and Procedures sets forth an excellent routine to cover this situation on Page 29 of the 1954 issue.

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New ideas, new products for housekeeping...

through one service expert!

American representatives understand housekeeping needs. They offer valuable experience and expert counsel in every hospital area . . . and the widest, most complete selection of products and services in the field. You can rely on *American*'s reputation for reliability and for prompt, dependable delivery. Your man from *American* is dedicated to your hospital's best interests . . . call him with confidence.

Meet Bill Coart, one of our Representatives in the Charlotte Region. A University of North Carolina graduate and World War II Navy officer, Bill joined *American* in 1951. Bill "wears well" with his customers because of a genuine desire to serve their needs and his willingness to dig hard for answers to their problems.

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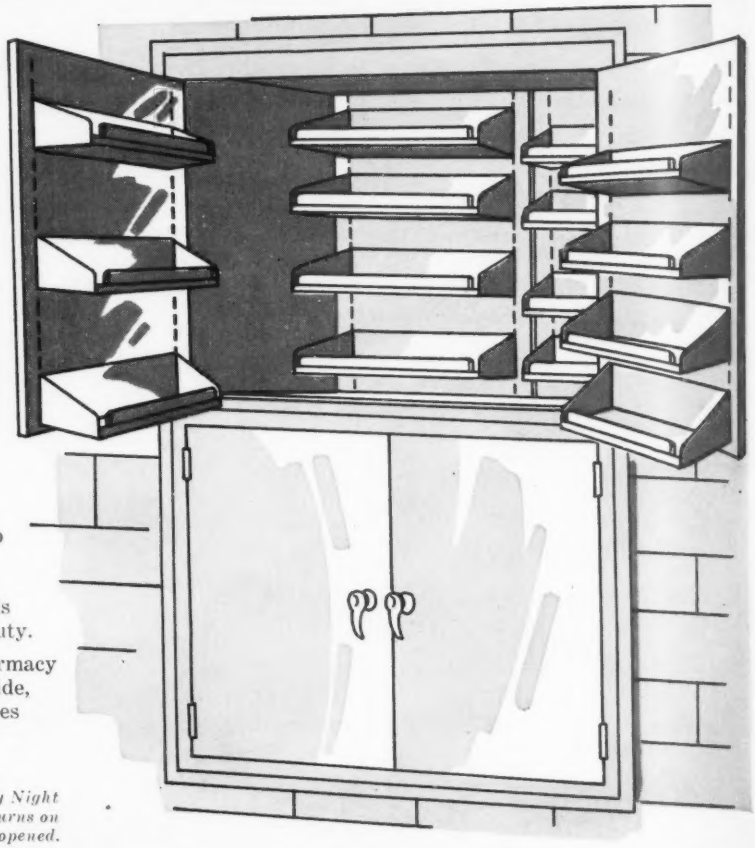
IS LIKE HAVING A PHARMACIST ON DUTY 24 HOURS A DAY!



The Hospital Pharmacy Night Service Cabinet, built into the pharmacy wall, with doors opening into the pharmacy and out onto the hospital corridor, takes the place of a nighttime pharmacist. A standard supply of medicinals locked in the cabinet by the pharmacist during the day are available to the responsible person who keeps the keys for the locked corridor doors when the pharmacy is closed. She simply unlocks the cabinet, leaves her script or order, takes what she needs and relocks the cabinet. In the morning the pharmacist picks up the orders and restocks the unit. There is no longer any need to have the whole pharmacy with its complete stocks of narcotics and expensive pharmaceuticals opened when the pharmacist is not on duty.

The McKesson & Robbins Hospital Pharmacy NIGHT SERVICE CABINET is 35″ wide, 60″ high and 13″ deep. Adjustable shelves give complete flexibility for storing all normal night pharmaceutical needs.

An optional exclusive feature of the Pharmacy Night Service Cabinet is an automatic switch which turns on a built-in "full-view" light when the doors are opened.

COMPACT Storage CABINET

...uses no more room to triple storage space. Movable and interchangeable trays lets you use *all* available interior space including the inside surface of the wide swinging doors...stores three times more than ordinary cabinets of the same size... keeps hospital supplies easy to see, easy to reach. McKesson COMPACT CABINET 35″ wide, 16″ deep and 30¼″ high comes with 20 adjustable steel trays with clear plastic leading edges.

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...stores four times more in the same space. Gravity feed, inclined trays put fast-moving, prepackaged pharmaceuticals at your fingertips.

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HOSPITAL DEPARTMENT

The Hospital Pharmacist as Bulk Compounder*

By Sereck H. Fox**

Bulk compounding is a sort of small-scale manufacturing procedure. This manufacturing by the hospital pharmacist must be representative of good professional practice, and the result of careful planning and design. Certain concepts must be adhered to in order that quality and uniformity of product may be maintained.

Specifications. These should be constructed according to the requirements of the finished product, and must reflect the requirements of the Pharmacopoeia and the National Formulary where applicable. Often it becomes necessary to devise particular specifications in order that the desired quality of finished product may be delivered.

These specifications should be permanently recorded in manual form, and a copy should be in the hands of the purchasing department. Purchasing should understand that no departure from such specifications will be permitted in the purchase of raw material.

Areas of operation. Raw materials must be processed through a receiving department in such a manner that each drum or package is identified with a control number. This number becomes a permanent part of the container until the contents have been completely used, whereupon the number is erased or destroyed. The source of this number is a pad of consecutively numbered receiving record forms. Each seperate numbered form has enough copies for distribution to the departments or agencies concerned, e.g., one copy to purchasing as evidence that the goods have arrived, one to the control department as evidence of a new shipment of raw material.

The control number becomes a permanent paper record of manufacturing operations in which the raw material is used, although the original containers and the numbers on them may have been destroyed.

A storage area must be provided for raw material just received where it may be properly protected and segregated from other materials until it is adjudged satisfactory for use. This storage space must be clean, uncluttered, and so arranged that any container may be opened, inspected, and moved around if necessary.

Raw material control. The manufacturer must satisfy himself that this raw material is of such quality that the finished product will meet the specifications set up for it. For this purpose a control laboratory is established, perhaps within a much larger area called the control department, since many functions of control are exercised outside the control laboratory itself.

In order to determine its quality, raw material must be sampled. Strict specifications as to sampling procedures have been set up, and one or more persons of the requisite intelligence, training, and experience have been specially trained as samplers.

If sampling is not competently and reliably done, all that follows may be wasted effort. One does not properly sample a mobile liquid of low viscosity and high specific gravity in the same manner as one attacks a liquid of high viscosity and

*Taken from a talk delivered before the third annual hospital pharmacy seminar, Wayne State University, Detroit, sponsored by Pfizer Laboratories.

**Professor of industrial pharmacy, Wayne State University.

low specific gravity. One does not attack a five-kilo bottle in quite the same manner as one attacks a tank car.

A good sampler does not take a portion of contents from one 100-kilo drum and merely check the labels of the others. Every drum must be sampled at least for the purpose of laboratory proof of identity. All of the drums in a shipment may be labeled calcium pantothenate, but one may contain calcium lactate. This must be discovered.

What about solids? Suppose that a manufacturer has been making a certain tablet or capsule using a raw material of 30- or 40-mesh size and all his equipment and formula directions are based on use of a material not only of this mesh size, but one in which the discrete particles of this solid are of a certain rather uniform shape. Angle of repose and particle shape have much to do with the flow properties of a solid, and "flow" is important in mechanical handling. Suppose further that the producer of this raw material did not mill and screen it properly and an inordinate amount of "fines" (small particles) were present. If the containers had remained upright throughout shipment the coarse particles would be on top. An untrained or inexperienced sampler may take a sample from the top only. This sample may be considered truly representative in the control laboratory, but it actually does not represent the shipment from which it came.

There are several factors which must be considered when the hospital pharmacist chooses to compound bulk items. Production control is one of them. Formula cards must be carefully constructed, each with its special lot number, containing the detailed history of a single batch. Card information must include the receiving control number of each raw material—material which is not removed from its storage area until the control department approves its removal and releases it for production use.

Another important facet, laboratory control, has among its many functions the detailed testing and assaying for identity, purity, uniformity, and potency. First, the raw material to be used is tested; then similar characteristics are checked in the finished product.

Bacteriologic control tests are done, not only to prove sterility in a finished injection, but to prove that a raw material such as gelatin or dried yeast contains no more than the number of organisms allowed by official monographs. In my experience I have rejected and shipped back to suppliers carloads of gelatin and many thousands of kilos of dried yeast for this reason alone.

Finished product specifications and laboratory procedures are calculated to test products for their adherence to such criteria as the absence of pyrogens and the presence of the proper amount of an active ingredient.

Over the years, official monographs in the Pharmacopoeia and the National Formulary have been made more exacting and more definitive, chiefly in the areas of specifications and tests. Details of compounding have been greatly reduced. Adherence to monograph specifications is required by federal law. The experienced manufacturer adds other specifications of his own, such as particle shape and size of a solid, in order to produce a more nearly perfect product. Is it not obvious that non-official drugs should be made with equal care?

Today a manufacturer may not introduce a new drug into interstate commerce unless he has submitted evidence that he maintains an adequate control system. Plant inspections by the Food and Drug Administration give most careful attention to control areas.

Control laboratories, however, were not established originally as mere obedience to a law. Restrictive laws are of more recent development. Control laboratories were begun in order to give proof of the quality built into the product, and to substantiate the professional integrity of the individual who manufactured it for the cure or alleviation of a human ill. It is not enough to say, "I have professional integrity." A compounder or manufacturer is human, and makes mistakes. We must therefore prove quality. This very proof and the act of proving are significant parts of what we call professional integrity. We must constantly prove, question, and challenge not only others, but ourselves and our own actions as well.

The hospital pharmacist who is a bulk compounder should take a long, hard look at the items discussed here, and many others also. The fact that the drugs he makes do not normally enter interstate commerce is a mere legal detail. As a pharmacist he must consider his professional integrity and the *method* of its proof.

"I've lost my prescription, but I'd like to come in and browse."

prescription pad

Anti-Depressant

A new anti-depressant, Elavil, from Merck, Sharp, and Dohme, is reported to be highly effective in the management of depression and associated anxiety and tension.

Used as a substitute for electroshock therapy except in acute suicidal risks, it is said to be satisfactory also when used with EST, often reducing the number of shock treatments.

Drowsiness, occurring in some patients within the first few days, disappears in the majority with continued treatment.

Available in 10 and 25 mg tablets.

Gastric Inhibitor

Nacton, an antisecretory preparation, has been recommended by McNeil Laboratories, Inc., for the treatment of peptic ulcer and hyperchlorhydria. It is said to inhibit hydrochloric acid formation in the parietal cell, and has an antispasmodic effect indicating its usage in gastrointestinal syndromes involving hypermotility.

Four-mg. scored pink tablets supplied in bottles of 100.

Arrhythmia Treatment

A new medication, Cardioquin tablets, has been introduced by Purdue Frederick, and recommended for treatment of cardiac arrhythmias.

Cardioquin contains quinidine polygalacturonate, which is said to prevent "ionic shock" and irritation of the gastrointestinal tract, common with conventional quinidine salts.

Each Cardioquin tablet contains 275 mgm. of quinidine polygalacturonate and is equivalent to 200 mgm. (3 grains) of quinidine sulfate.

New Heart Drug

Perithiazide Sa (sustained action) is a single-tablet approach to prompt relief for coronary artery disease complicated by heart failure and/or high blood pressure.

Marketed by Warner-Chilcott Laboratories, each tablet contains two widely cardiovascular medications: 80mg. of pentaerythritol tetranitrate (Peritrate (R)) and 25 mg. hydrochlorothiazide. Peritrate is a long-acting vasodilator which increases myocardial blood flow without a significant increase in cardiac output, and hydrochlorothiazide is an effective diuretic which reduces excess fluid retention.

Topical Corticosteroid

Pruritis and inflammation of various dermatoses are effectively alleviated and controlled by a new topical corticosteriod, Cordran (flurandrenolone), introduced by Eli Lilly and Company.

Cordran is recommended for the symptomatic treatment of atopic dermatitis, contact dermatitis, acute and chronic eczematous dermatitus, and similar conditions.

For dermatoses complicated by skin infections, Cordran is available in combination with neomycin sulfate as Cordran-N.

Cordran and Cordran-N available as cream or ointment in 7.5 and 15 Gm. tubes.

Oral Progestational Agent

Parke, Davis, and Company has announced an oral progestational agent for treating disorders of menstruation and pregnancy associated with progestational deficiency.

Norlutate is similar in function to the hormone progesterone, and is the asetic acid ester of Norlutin.

It is reported that Norlutate tends to stabilize menstrual rhythm in women being treated for infertility, and it is said to be useful in a variety of gynecologic disorders.

In bottles containing 30, 5 mg scored tablets.

Cough syrup

Quelidrine (TM) Syrup, a new fruit-flavored cough syrup from Abbott Laboratories, is effective against all types of coughs, without risk of addiction and undue sedation.

Indicated for cough complications of such inflammatory or allergic disorders as common colds, rhinitis, sinusitis, pharyngitis, tracheitis, bronchitis, laryngitis, asthma, grippe, influenza and pneumonitis. Side effects are infrequent.

In 4 oz. bottles, pints, gallons.

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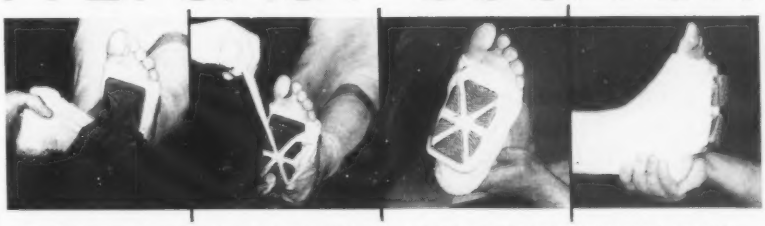
Introduced in response to numerous requests from the medical profession for a lower, more comfortable walking heel for ambulatory cast patients, and one which could be anchored in the cast more securely. The F. B. CAST CUSHION is the result of extensive research, experimentation and clinical testing and brings you these many long awaited advantages.

F. B. CAST CUSHION



Easier to apply and anchor more securely than conventional walking heels. Deep criss-cross section spacing permits the plaster bandage to be applied as a normal figure eight wrapping as illustrated. Raised tips on inner side of CAST CUSHION set firmly in cast to prevent lateral movement.

Lower for greater patient comfort and elimination of forced limp . . . a true walking aid, not a stilt.

Molded of fine quality rubber . . . strong and long wearing, yet sufficiently resilient to provide adequate cushioning and shock absorption. No-slip, no-mar tread.

Order a supply today . . . No. 845, $15.00 per dozen.

DePuy Manufacturing Co., Inc., Warsaw, Indiana

Test New Drug to Prevent Alcoholism

A new drug, chlordiazepoxide, is said to be effective against delerium tremens and alcoholic hangovers when injected in veins of victims.

Dr. Herbert E. Karolus, medical director of the Keeley Institute, Dwight, Ill., reporting in the Illinois State Medical Journal, said he used the drug on 40 patients, and compared the results in 40 other patients given tranquilizing drugs.

Dr. Karolus said, "There is every indication that chlordiazepoxide is the therapy of choice for the alcoholic, and it may replace entirely our present method of therapy."

It was reported that the drug was injected into the veins of victims of delerium tremens, and in a matter of seconds, patients became calm enough to be interviewed.

Chemical Test Offered To Aid Diagnosis

A simple and accurate chemical test to help distinguish between long standing chronic disease and a sudden infectious process was described at a recent meeting of the American Association of Clinical Chemists in New York.

The test is believed to have a number of applications in aiding diagnosis, possibly even to providing a means of mass screening of populations to find chronic or infectious disease in unsuspected cases.

The test was described by Dr. Abraham Saifer, chief of the Biochemistry Department of the Isaac Albert Research Institute of the Jewish Chronic Disease Hospital in Brooklyn.

Disease causes changes in the relative amounts of the two main groups of blood proteins—albumins and globulins. Albumin fraction decreases and globulin fraction increases with either chronic disease or sudden infection. The new test now enables lab workers to determine the kind and amount of globulin proteins (apart from the albumins) present in specimens of urine, blood or spinal fluid.

The new technic enables technicians to make as many as 30 separate measurements of blood albumins, and the three types of globulin, in a few hours. The determination, Dr. Saifer said, is quickly and simply done.

Foreign Medical Grads Increase in 1960-61

The number of foreign medical graduates in approved training programs increased by five percent during 1960-61, according to a report from the AMA.

A temporary decrease had been expected due to the program initiated by the Educational Council for Foreign Medical Graduates. The program requires that foreign interns and residents be tested to determine whether their education measured up to American standards, the highest in the world.

While the number of foreign residents increased by 1,270 in 1960-61, the number of foreign interns decreased by 792 compared with the previous year.

This is the first year since 1954-55 that foreign interns have comprised less than one-third of all foreign physicians in training, and is undoubtedly due to the ECFMG certification program, the AMA Council reported.

As the final step in pre-operative skin preparation, adhere sterile Vi-DRAPE Film firmly to the patient's skin with spray-on sterile Vi-Hesive® Adherant. This plastic bacterial barrier molds to all contours, seals off the skin, presenting a sterile operative site. Anatomic areas difficult to disinfect and previously considered impossible to drape aseptically are isolated. Vi-DRAPE Film is impervious to bacteria, feces, and fluids...permits extending incision or making second incision without re-prepping or re-draping...eliminates skin towels and towel clips.

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Originators of aids for improved asepsis

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NOW—A NEW STANDARD OF HILOW BED
VALUE, SAFETY AND EFFICIENCY

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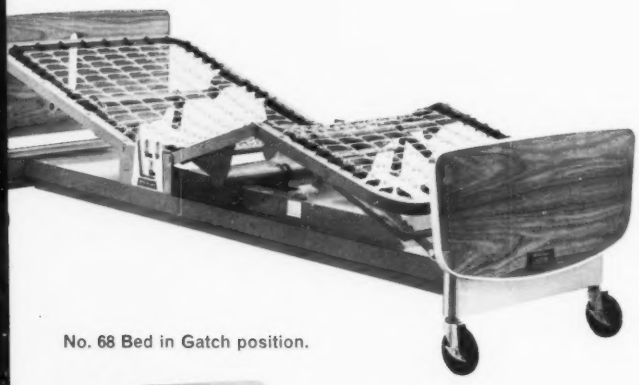
ANNOUNCES:

THE HILL-ROM no. 68 ALL-ELECTRIC HILOW BED

LISTED UNDER UNDERWRITERS' LABORATORIES, INC. REEXAMINATION SERVICE UL

*Contour Position

15 Reasons why this bed is your best buy

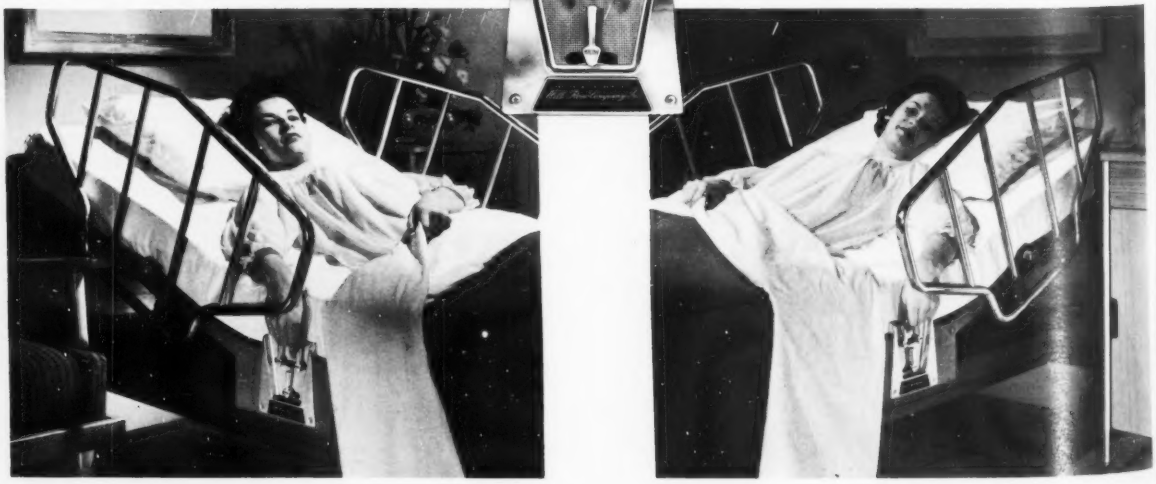


No. 68 Bed in Gatch position.

All parts enclosed in a center channel. No obstructions for thorough cleaning.

1. **Fewer electrical parts.** Only 5 electrical parts in this new No. 68 bed. This compares to as high as 20 in competitive beds. Fewer parts mean lower maintenance!
2. **Finger tip controls.** The easy-to-operate finger tip controls are located on both sides of the bed—easy to reach—easy to operate.
3. **Easy to clean.** All electrical and mechanical parts are enclosed in a center channel. No obstructions for thorough cleaning.
4. **Easier to move.** Large 5″ double ball bearing casters are used in place of 3″ size.
5. **Lower height.** Even with 5″ casters this bed moves lower than other beds on the market.
6. **Permanently lubricated.** Oilite washers, oilite bearings and slide buttons lubricate the moving parts.
7. **Pulls only 2.1 amps.** The efficient cable operation plus the oilite bearings in moving parts allows the use of a 1/12 H.P. motor.
8. **All spring positions.** One electrical motor employed to secure any required spring position—as well as to raise or lower the bed.
9. **Protection of stainless steel.** Legs of the foot end are protected with stainless steel—no paint to chip, no plating to peel.
10. **Edges of panels guarded.** A bright metal baffle plate protects the edges of bed ends around the entire panel.
11. **National Fabric bottom.** Cadmium plated—rust proof. Easy to clean.
12. **Six I.V. rod receptacles.** Uniquely engineered to lock the I.V. rod securely in place.
13. **Folding mattress guard.** Retains mattress in proper spring position.
14. **Refreshing new look.** Bed ends have a pleasingly contoured styling and are made in a variety of woods and plastics.
15. **Low cost.** Delivered price is lower than any comparable bed—and, because the cost of maintenance is also low, this new No. 68 all-electric hilow bed is truly your "*best buy*."

Finger tip controls on both sides of bed.



Patient operating controls with right hand.

Patient operating controls with left hand.

The new extraordinary no. 48-10 Intensive Care Bed for Superior Service—Minimum Maintenance—plus Low Cost

Easy maneuverability: Easy to handle and move. Light weight and large (10″ diameter) heavy duty conductive casters, all equipped with swivel locks and brakes, make this bed easy to handle and move—safe and secure in locked position.

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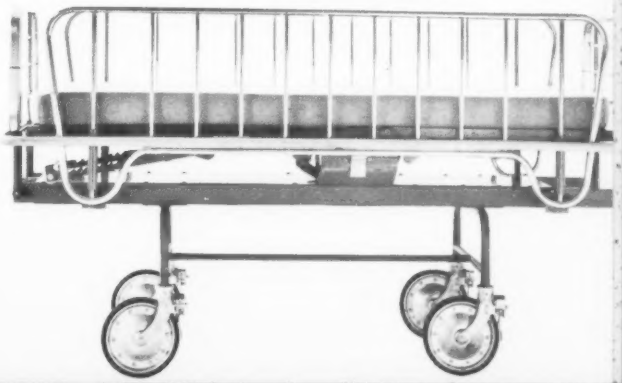

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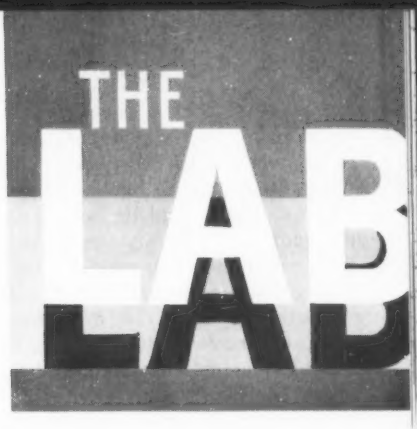

Accuracy and Error in the Laboratory

Part X (Conclusion)

Types of Controls

By E. E. Myers, M.D.*

Controls—General

(Continued from the September issue)

Two-Procedure Check and Correlation with Other Tests:

Doing a test by two different methods is one of the best ways to check on accuracy, since the patient's serum may be the only thing that is the same in both tests. This method is especially valuable when an entirely different principle is employed, considering that the accuracy and reproducibility of the two methods are comparable. For example, the copper sulfate specific gravity method for serum proteins is a good check on chemical methods. A complement-fixation test is a good check on a precipitation test in the diagnosis of syphilis, and it is better to use this test than to do another precipitation test.

The two procedures used may even be of different character and test only for related substances. The diacetic acid test should never be positive when the acetone test is negative, because the test for acetone (sodium nitroprusside test) is also a test for diacetic acid and is more sensitive to diacetic acid than to acetone.

In a blood count, the blood spread can be used as a check on the white blood-cell count, in that one should become accustomed to estimating the whitecell count by looking at the blood spread. It has already been mentioned that the several tests for thyroid function can be used as checks against each other, as can the various tests for liver function, kidney function, and so forth.

When a test for blood uric acid for gout indicates an increase, there should also be a test for urea nitrogen. Increased uric acid may merely be a sign of impaired kidney function, rather than faulty metabolism, because uric acid is one of the first substances to be retained.

A sugar test on cerebrospinal fluid is of no value at all without a simultaneous blood-sugar test (and actually this test is of little value, if any, in the author's opinion).

The icterus index is a good check against the serum bilirubin; a factor of approximately six or seven times the bilirubin gives the icterus index.

In calculating the BMR, it is well to use different methods, one depending upon the use of Boyles' and Charles' Laws and the other perhaps a simplified table or slide-rule method.

A platelet count can be fairly well estimated on the basis of the blood spread. In our laboratory we report the number of platelets "per oil immersion field," which we find normally runs six to eight. We obtain remarkable correlation with the platelet count.

Two-Person Check:

One of the best and simplest ways to check a result is to have another person do the same procedure. Many errors may thus be quickly discovered, whereas one person may repeat the same error over and over. However, to have two persons do a test routinely is wasteful of time. Also, there may be too much dependence on the other person, and as a result errors may be made.

It is a policy in some laboratories to have two persons routinely perform duplicate blood typings, but this is wasteful of time and materials and should not be necessary if other proper controls are used. However, the system is useful in teaching.

Each laboratory may find a particular need for a two-person check on certain procedures, especially if other types of controls are not set up or are inadequate. We have continued over the years the policy of having another person check parts of BMR calculations, but these could and should be controlled in another manner.

Check Using Two Sources of Materials:

This type of control is useful in blood typing, various chemical tests, standards, antigens, serologic tests, and so forth. A chemical from one source may work better than that from another, perhaps not because of greater purity but because of different methods of manufacture. For example, in the thromboplastin generation test the barium sulfate particles adsorb the PTC factor (and prothrombin) better if they are of a particular size.

Reverse-Approach Check:

This method consists of working backward to try to check for error.

*Director of clinical and research laboratories, The Myers Clinic and Broaddus Hospital, Philippi, W. Va.

Its simplest form is checking subtraction by adding the result and subtrahend to see whether they make the minuend. Similarly, division can be checked by multiplying the quotient by the divisor. Elementary, yes—yet these are the simple things that errors are made of.

Another example of a reverse-approach check is "back-typing" in blood grouping—checking for agglutinins in donor and patient sera. Also in this category one might include checking for leaks in a Van Slyke apparatus by lowering the mercury again after the test is completed and noting whether there is any increase in volume of gas. After the sedimentation rate is completed, if there has been little fall the tube should be shaken out on filter paper and examined for clots.

Two-Instruments Check:

Since instruments may vary or go bad at any time, the more important ones which would require time for repair or replacement should be duplicated in the laboratory—not necessarily with the same instrument but with one of the same type or principle. For instance, the microgasometer may be used to check the Van Slyke apparatus; a spectrophotometer may be used to check a photometer.

Both instruments should be used frequently enough that they would be checked one against the other occasionally or be ready for checking at any time. It would not seem necessary to duplicate tests on each instrument routinely.

Clinical Correlation:

The results of laboratory tests should be correlated with the clinical findings as the final check on accuracy. However, laboratory tests may be positive where there are no symptoms or signs of disease, and by the only evidence of a diseased state. Positive laboratory tests should never be disregarded, but the tests should be repeated and checked with other rests until a satisfactory conclusion is reached by both the clinician and the clinical pathologist. If laboratory tests are negative in the face of clinical disease, similar checks should be made.

Frequent consultation and discussion between the clinician and the clinical pathologist are necessary for optimum care of patients, especially problem cases. The clinical pathologist will gain much help by discussing the various phases of the tests with the medical technologist. The technologist, in turn, will be enabled to do the best possible work by having an understanding of the clinical condition of the patient and by discussing all aspects with the pathologist. Teamwork in the care of the patient is becoming more important as more tests are developed and diagnosis and treatment become more detailed. Mutual confidence engenders good work.

A great help in correlation with clinical findings is what might be called "establishment of normals"—determination of a person's normal laboratory findings when in good health to serve as a baseline for later determinations. This is an important coming phase of preventive medicine.

Reference Laboratory:

Because the reference laboratory plays an essential part in the control of accuracy in the laboratory, each laboratory should establish reference laboratories for various procedures. The state public health laboratories can serve in this respect for a number of tests, especially in bacteriology, virology, parasitology, and serology. The national Public Health Service laboratories can also be called upon through state laboratories. The College of American Pathologists has published a list of laboratories which have indicated an interest and experience in certain tests, and this list is an excellent source for reference work.

Controls—Specific

Selection for Each Test and Allowable Variation:

Each test must have specific controls, selected, as far as is possible, for the particular test, although it is not possible at present to have an individual control for each test. Tests will vary as to the desirable accuracy and obtainable accuracy, and these factors must be determined for each laboratory and each test.

Each test should be approached as an experimental problem and individualized as much as possible. Moreover, each one should be reviewed periodically as to what controls can be used and as to whether it is being optimally controlled.

This illustrates the use of a standby instrument for checking any suspected variation of the instrument in regular use. The photometer on the right is used daily; the one of the left is kept covered ordinarily but is used frequently to check the other instrument. This arrangement is most economical when the second instrument is used elsewhere in the laboratory in routine tests. Photocells deteriorate in photometers and need to be replaced.

Several categories of tests, such as those in parasitology and bacteriology, can have no controls except the care involved in collecting the specimen and in carrying out the technic utilized in the test, knowledge of the individual performing the tests, time and care spent in examination of the findings, and repetition.

A "step technic" for each test or combination of tests will assist in avoiding errors. Tables are generally better aids than graphs, because there is less danger of error in reading them.

In the test for urea nitrogen involving urease, one must use a control which is acted upon by urease, such as Versatol. A control which has only ammonia nitrogen in it will not test for urease activity.

Interesting Errors

An interesting error occurred in our laboratory recently when tests were done on a mother's and baby's blood for possible subclinical carbon monoxide poisoning. Among tests used was the alkali test (sodium hydroxide). The baby's blood gave the typical result for carbon monoxide hemoglobin. It was not remembered at the time (nor was it stated in the textbook used) that fetal hemoglobin gives the same type of reaction. When this was recalled and confirmed, various other textbooks were inspected, and none clarified this point.

Another error due to lack of knowledge was caused by giving a type "A" patient who had received several units of "O" blood another unit of "A" blood. No incompatibility was noted on the cross-match, but the patient had a hemolytic transfusion reaction. At about the same time an article appeared which reported that this phenomenon had been observed in some Korean War cases. But the danger has never been adequately emphasized in the literature or textbooks. This type of reaction has been designated by us as "reversal transfusion reaction."

Conclusion

It has been said, "Most people live by superstition, shibboleth and slogan," and it cannot be denied that these are powerful influences for everyone, even in the laboratory. It is inaccurate to state simply that "error is due to ignorance," although the first requisite for avoiding error is knowledge.

A common cause of error is accepting as fact what one sees in a textbook or elsewhere in print. In the first printing of a recent standard laboratory textbook, 196 errors were found. Many of these were minor, such as misspelled words, but some could lead to error.

Advocation of a number of different technics for one test is an indication that none is entirely satisfactory and the one selected must be subjected to critical evaluation. Undoubtedly many useless tests are being done in laboratories and being relied upon in diagnosis and treatment of patients. Constant reevaluation and study are necessary to improve accuracy and decrease error in the laboratory.

ACKNOWLEDGMENTS

Grateful acknowledgment is hereby given to those who have assisted in any way in this series—especially the medical technologist of The Myers Clinic-Broaddus Hospital Laboratory; students in The Myers Clinic-Broaddus Hospital School of Medical Technology; Richard Crawford, photographer, and Melva Nutter, secretary.

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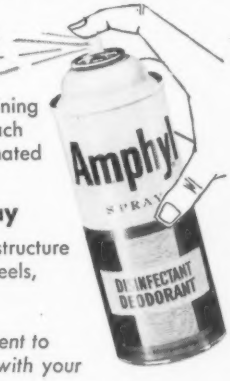

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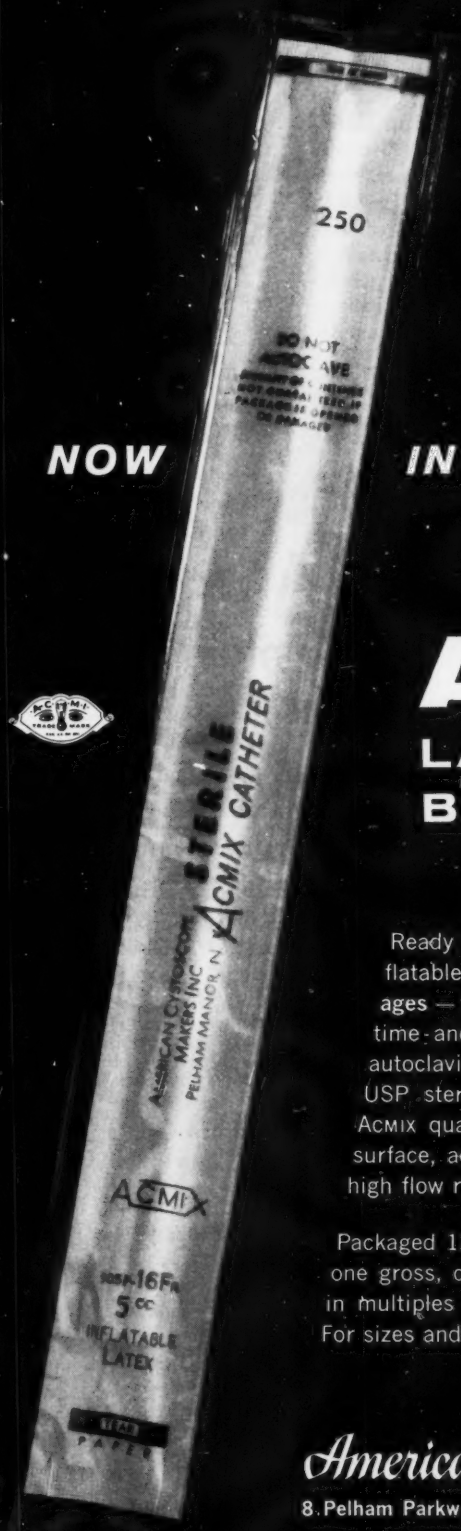

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Pediatrics

Testing Hearing of Preschool Children is Fun for Kids, Achievement for Audiologist

By Ellen L. Davis

The differential diagnosis of speech delay and the accurate assessment of hearing loss in the very young child is one of the most challenging problems facing the hearing clinic and the individual ear, nose and throat specialist.

Since diagnosis is a prerequisite for treatment, and the success of language and speech development is largely dependent on the early commencement of appropriate training procedure, effective technics for earlier diagnosis were long an unmet need in the field.

It became a professional and personal challenge to a young audiologist, C. Olaf Haug, Ph. D., of Houston, Texas, when he was a graduate student at the University of Wisconsin. In 1948, he developed a special machine, the "Pediacoumeter," for testing patients too young to understand the usual hearing tests.

The machine consists of a small, portable case in which are mounted seven amusing doll heads. These heads are fastened to shafts from seven solenoids providing the driving force for the release of the figures up and out of their houses when the pushbutton switch is closed by the child, as he hears the audiometric pure tones. A separate switch is provided in the line to prevent random completion of the circuit by the child, when the audiometer tones are not presented.

"Our purpose," said Dr. Haug, "is to capture and hold the attention of the youngster for the testing situation, and then to motivate him to *want* to listen to very, very faint threshold sounds in order to see the dolls pop up.

"Formerly," he continued, "though it was difficult to prescribe for amplification or educational needs until an

Pictures on this page by John Dominis, staff photographer, Life magazine.

"Now you come out; I know you're in there." The youngster, who has been conditioned by verbal, pantomimed and visual explanation, knows the boxes house little people who will pop up when he presses button in response to sound.

He waits expectantly for the sound to signal him to press the button. "Well, what d'ya know, he's coming up!" Since each box responds to a different tone, not knowing which doll head will appear enhances the excitement of the game.

C. Olaf Haug, Ph.D., audiologist and inventor of the Pediacoumeter for testing the hearing of preschool age children, adjusts the earphones on a little boy about to be tested. In tests of 1,426 children, from 1952 to 1961, successful evaluation was achieved in 1,197 cases.

accurate evaluation or diagnosis of hearing impairment was made, the physician or audiologist was often forced to delay testing for a child's threshold of hearing pure tones until the age of five or six years because of the impossibility of obtaining an accurate evaluation of hearing in a very young child with conventional audiometric technics.

"The listening situation is meaningless to him; his short attention span makes it impossible for him to attend consistently and for an adequate length of time; and he has no motivation for listening to the very faint threshold sounds."

Because it captures and holds the interest of the child from 20 to 60 months of age, makes him want to attend to the faint sounds for the reward of seeing the funny dolls pop up, and combines in attention and reward the delightful element of surprise, the Pediacoumeter has achieved hearing evaluations where conventional audiometry has failed.

Before the Pediacoumeter is employed, some preliminary adjustment of the patient and observation of his behavior is indicated. Most very young children have a certain amount of apprehension on entering a soundproof room, and may vigorously resist the testing procedure if it is introduced too rapidly.

"We let the child move about freely for some time," said Dr. Haug, "investigating the room and playing with a few toys. As he becomes more at ease, we have an opportunity to observe his general behavior, his motor control, curiosity, use of visual cues, language and speech, and gross response to sound. During this time, one can measure his cessation of activity or searching responses to roughly calibrated noisemakers or sound effects presented through the free field speaker setup.

"A thorough history and otological examination should have been accomplished before this period. If the child is severely delayed in speech and language development, some sort of behavioral inventory profile for the differential diagnosis of deafness, mental retardation, asphasia, and emotional disturbance should also be plotted by observation of the patient and interview of the parent."

When the child is happy in his environment, he is introduced to the earphone headset. He is given a boy or girl doll, on which a headset is placed. Several large pictures of small children with earphones, "playing the game," are helpful. The fact that his parent and the doctor are wearing earphones usually overcomes any fear he may have of this equipment. If he actively rejects and fights all attempts to persuade him to cooperate with the headset, a brightly-colored telephone with an audiometer receiver mounted in the earpiece is used. If even this method fails, the test may still be carried out with pure tones in the free field speaker setup. Generally, when the child sees that the game is fun, he will accept the headset, and testing can return to individual ear, threshold measurements.

The child, seated alone or on his mother's lap in front of the Pediacoumeter, is then given pantomined instructions. Pantomine is always used because it not only explains what is expected of the child, but it points up and dramatizes the action and creates more interest in the game, even in those children with good understanding of speech.

Testing begins by lifting up several of the doll house lids and briefly showing the dolls to pique the child's curiosity. He is told that the little people are locked up in their houses and that he is going to help them out when they make a noise.

"We pantomine and verbalize like this," said Dr. Haug.

He put a finger to his lips in a shushing gesture and cupped his other hand behind one of the earphones in a listening pose. "Shhh. Let's listen." He exaggerated his listening attitude, straining and tilting his head. "Shhh! Do the little people want to get out now?"

Shaking head, shrugging shoulders, closing eyes and resting his head in his hand, he said, "Noooo! They're all asleep!"

Suddenly awaking to an alert, careful listening pose, followed immediately by an exaggerated raised-eyebrows, open-mouth expression of delight and surprise, Dr. Haug rhythmically tapped one of the earphones with his finger. "Now I hear him—beep, beep, beep beep! He wants to get out!"

He closed the interrupter or control switch, held the pushbutton out in front of the row of dolls in order to be easily seen, pressed the button firmly, holding it down, and as the doll popped out, registered surprise and delight and laughed, "There he is!"

Dr. Haug grinned as he removed his earphones. "And there you have," he said, "a talking picture of an audiologist at work."

The procedure is repeated—the number of times depending on the age and attention of the child. The tester then taps one of the child's earphones, repeating "beep, beep, beep, beep," puts a thumb over the child's thumb on the pushbutton, pretending to push it, after which he gestures that the doll will come out again. The child has usually discerned by now that some stimulation is to be received in the earphones, and when it is, if he presses the button, he gets a favorable reward response.

The tester selects a tone of a designated frequency and intensity—usually high intensity at 250 or 500 cps,

Younger children, especially those with a tendency to shyness, sometimes resist the earphones, though most will finally accept them when they become absorbed in the fun of the game. Alternate devices have been installed by Dr. Haug to serve during the warm-up period. Left, a little boy uses the conventional type phone, adapted for the test. For children who are reluctant to manipulate the push-button, a toy gun, above, sets the mechanism in action when the trigger is pulled.

where one is most likely to find hearing residuals if they exist. With fingers to lips, he again admonishes the child to listen very, very carefully, and without change of facial expressions, presses the audiometer button and presents tone to the child's ear.

If the child immediately and firmly presses the push-button, the tester closes the interrupter switch and allows the doll to pop up, reacting with the child by laughing and clapping. If the child (usually shy, youngest ones) indicates by an immediate facial reaction that he has heard, but is reluctant to push the button, the tester helps him do it. In this latter case, the child's response to the test tone is clear, he is attending carefully in eager anticipation of seeing all the dolls, and pushing the button then becomes, instead of a response signal, only a means of providing the reward for listening, and may be done by the tester until the child is properly conditioned and cooperating.

"We also employ a substitute pushbutton mechanism," said Dr. Haug, "mounted in a small toy cowboy gun for use with the shy child who is reluctant to manipulate the conventional pushbutton."

Probing is continued in five to 10 decibel decrements until threshold is passed with no response, after which the intensity is increased again five decibels until response is noted.

If the tester fails in the initial conditioning attempt although the child has accepted the phones, it is best to preserve for a time according to Dr. Haug. "However, one should not press or push too long. It is better, when you are at an impasse, to give the child a break away from the phones, or even from the room, and then return refreshed. Failing again, it may be necessary to postpone further attempts until another visit."

The results of tests using the Pediacoumeter on 1426 preschool children from 1952 to 1961 is shown in Table 1. It is broken down into age groups from one year through five years, and shows the number of successful and unsuccessful tests with percentages for each group and for the total series.

By successful testing is meant the plotting of what was felt to be a reliable pure tone air conduction or AC and BC threshold audiogram, on a patient whose responses were consistently present immediately above threshold, present at least two out of three times at threshold, and consistently absent immediately below threshold.

The table on this page shows that Dr. Haug and his associates have been 96 percent successful with the five-year-olds (434 out of 450), and 94 percent successful in testing the four-year-olds (409 out of 435). In testing the three-year-olds, results were 83 percent successful, or 256 out of 308.

There were 90 successful tests on two-year-olds for a percentage of success of 48. On the one-year-olds, there were only nine successes, for a percentage of 16.

The small number of total cases in the one-year group is due to the fact that on many infants no attempt is made to use the Pediacoumeter if it is certain that it can have no application, and reliance is placed on noise-makers and sound effects. Also poor response to sound or delay in speech is often not recognized or investigated by the parents until about the second birthday.

The totals show 1197 successful tests, 146 unsuccessful where conditioning to testing with pure tones was not possible, 83 additionally unsuccessful because of lack of cooperation with the earphone headset or one earphone held to the ear, out of a total pre-school population of 1426. This represents a total percentage of success of 83, with 17 per cent unsuccessful.

The Pediacoumeter has been used advantageously on many children six and over who had had brain injuries,

Table 1

Pediacoumeter Results on Children of Preschool Age 1952-1961

Age group	5 to 5-11	4 to 4-11	3 to 3-11	2 to 2-11	1 to 1-11	Totals
Successful-complete pure tone audios	434	409	256	90	8	1197
Unsuccessful-no conditioning. Phones tolerated.	12	20	32	61	21	146
Unsuccessful-no cooperation with earphones.	4	6	20	34	19	83
Totals	450	435	308	185	48	1426
% Successful tests	96%	94%	83%	48%	16%	83%

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were mentally retarded or otherwise severely handicapped in language areas and attention span, but these were not included in this study of preschool youngsters.

The Pediacoumeter has been, or is being used at a number of clinics and centers, including the University of Texas Medical Branch, Galveston; Houston Speech and Hearing Center; Audiology and Neuro-otology Laboratory, Houston; West Texas Rehabilitation Center, Abilene; Dallas Hearing Society; Cerebral Palsy Clinic, Austin; Moody School for Cerebral Palsied, Galveston; Regional Hearing and Speech Foundation, Amarillo; Ohio State University Hearing and Speech Center; Hearing and Speech Center, Rochester, N.Y.; Hearing and Speech Clinic, University of Michigan, Ann Arbor; and by private ear, nose and throat physicians in Waco and Houston, Texas and in Wichita, Kans.

The Pediacoumeter has not only proved to be highly successful in testing a very difficult age group, but overcomes many of the disadvantages of other tests and instruments, such as high cost, excessive time and complexity of administration, difficulty of understanding directions, lack of dramatic and interest appeal, narrowness of hearing range tested, complexity of interpreting results, lack of individual ear evaluation, and lack of correlation between the test sounds and the objects represented as the sound source.

"We hope that as the use of tools such as the Pediacoumeter becomes more general," said Dr. Haug, who is currently director of the Audiology and Speech Laboratory for a private medical group in Houston. "We hope that more children's hearing difficulties will be diagnosed earlier. The sooner they are helped, the sooner, and better, they can respond to, and participate in, the wonderful world around them."

Thirteen-year-old Sharon Schwartz, manager of the fifth annual Maplecrest Children's Benefit Fair, demonstrates to Mrs. Edward Baldwin, head nurse in Aultman Hospital's pediatrics department, one of the new toys the fair's proceeds purchased for Aultman. Each summer for five years a group of youngsters in North Canton, O., has organized and run a benefit backyard fair, and has used the profits for new equipment and toys for Aultman's pediatric unit.

"Summer Santa" Visits Aultman's Pediatric Unit

One hot summer five years ago a group of youngsters in North Canton, O., decided to put on a "backyard fair." With their parents' aid in providing popcorn, cupcakes, and fudge, the fair netted $22. The children, pleased with their success, decided to use this profit to purchase something for other children less fortunate than themselves. So they bought three bedtables for the pediatric division of Aultman Hospital, Canton, O.

Each summer since than a fair has been put on—each summer the profits have grown a little more: and so have the "Summer Santas'" gifts to Aultman.

In 1957 the fair's proceeds bought three more bedtables. In 1958, the children were able to purchase games, books, puzzles, and toys to use for a supervised play period in the pediatric unit's new division. The 1959 and '60 fairs resulted in a new profit of over $267—and bought a record player and childrens' albums, and a viewfinder in 1959; and a baby-tender, buggy, new playpen and pad, and several games in 1960. In fact, last year the group was able to present gifts to the Canton Rehabilitation Center and the Canton United Cerebral Palsy Center as well as to Aultman.

As the proceeds have grown, so has the scope of the fair. The youngsters now represent a well-organized group with an elected manager and co-manager to coordinate activities. They distribute dittoed notices of the coming fair to the neighborhood, solicit door-to-door for articles no longer needed by families to use as fair prizes, and make posters for advance publicity.

And nowadays—besides popcorn and fudge—the fair offers dart games, ring tosses, fish pond, and grab bags, among other attractions. In addition, the local merchants have become interested in the project, and last year donated blankets, salad bowls, a lawn chair, and other items for auctioning off to the highest bidder.

One of the best points: parents of the youngsters are quick to point out that, unlike many another summer project, this one is almost completely carried out by the children themselves. Only a bit of baking and popcorn-making is left to mothers' hands.

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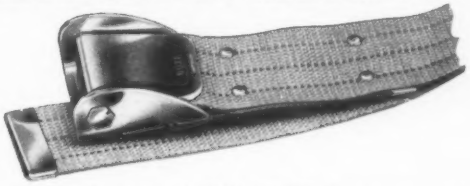

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Formula Room Sanitation

By Emily D. Pepper, R.N.*

Hospitals are making strong demands for uniformity in formula preparation, either by terminal sterilization or aseptic methods, depending upon the needs of the institution. Regardless of where formula is prepared, the need for a standardized, efficient technic is fundamental. Basic standards should be set up and followed to maintain the best quality formula, prepared under the best sanitary methods available.

Government agencies, of course, supervise the inspection of milk, meat, and foods, and have promoted excellent sanitation measures. Each state has its own public health department which sets up standards for counties and cities and the hospitals in them to maintain proper rigid rules of sanitation. Each hospital standard should cover practical conditions that can assure milk mixtures which are bacteriologically and otherwise safe for consumption.

There are several key factors in the maintenance of good sanitation standards in the formula room. Our purpose in this article is to call attention to these, briefly.

Personnel:

Regardless of the type of equipment—whether old or ultramodern—good technic or standards cannot be used efficiently if the person preparing formula is not aware of the principles of good sanitation. The professional as well as the nonprofessional team should be surveyed for their own standards of cleanliness.

In order to avoid unnecessary contamination, no one with symptoms of gastrointestinal upsets or nose and throat congestion should be permitted to prepare formula. A regular check on personnel, including nose and throat cultures, should be required.

Scrub dresses or gowns should be worn in formula-preparation areas, to guard against contamination of these areas by outside bacteria. Hair should be covered with a scrub cap; masks are worn if hospital standards require them. The supervisor should stress the necessity of doing a thorough hand scrub prior to formula preparation, and in doing so should point out that clean nail beds eliminate a possible reservoir for bacteria. A liquid germicidal hand soap should always be used.

Standards and Procedures:

The cooperation of personnel should be sought in adopting and using the best technic available. Helping to set up procedures which meet the best sanitary standards can stimulate interest and creativity among personnel.

Standards should be set up by each hospital in accordance with state requirements. The requirements of the health department should be met as to bacteriological tests for safe formula standards.

The department's procedure book should be kept available for reference in the formula room.

The importance of accuracy in preparing and pouring milk mixtures should be stressed by the supervisor. If aseptic methods are used, personnel should be instructed in the importance of technic and told to report any possible contamination or "break" in sterility. The terminal method seems desirable, because the end result is almost certainly sterility.

The supervisor or dietition should keep up with all available literature and equipment needed to produce the best service, and should attend workshops or seminars to exchange ideas and experience with others.

Equipment:

Poor facilities prevent good sanitation. Not all hospitals can afford expensive equipment, but at least the every-day utensils required should be of the best quality materials. Equipment should be purchased from reliable firms to insure maintenance and durability.

For graduated measures, funnels, spoons, and similar equipment the use of stainless steel is highly recommended. Pyrex glass bottles are the least expensive in the long run, because of their durability. Wide-mouth bottles are easier to clean, and thus milk stains are less likely in these bottles than in the narrow-neck bottles.

Adequate facilities for washing bottles and nipples should be installed at a proper height for the comfort of the person responsible for this area. The bottle

*Mrs. Pepper is nursery and formula room supervisor, Abington (Pa.) Memorial Hospital.

This article is based on a lecture which the author gave during the 22nd educational seminar presented by Klenzade, Inc., in April, 1960, in Essex County, N. Y.

brush, either hand or machine, should be the correct size and design to reach all areas inside and outside the bottle, and should be constructed to give the best available service.

Rubber nipples should be chosen for their durability, because they must withstand repeated washing and sterilization.

Modern stainless steel sinks and work areas provide easy, smooth surfaces for cleaning. A scrubup sink should be installed for personnel to use in hand scrubs before preparation of formula begins. Plumbing should be installed by certified plumbers to prevent possible "back flow" on waste water.

Mechanical equipment should be surveyed regularly to maintain the best possible service, and old and outdated equipment replaced. Keeping equipment clean and in good repair will lengthen its service. Dials, gauges and electrical outlets should be checked for accuracy and minor needs repaired immediately to avoid larger expenditures later on.

Cleaning of Bottles, Nipples:

It is of vital importance to use methods which will thoroughly remove organic and mineral deposits in nursing bottles. The chemical industry, through experience and research, has simplified cleaning procedures for nursery equipment as well as dairy and food equipment. Stain and film are unnecessary if good detergents are used instead of soap.

It is unwise, in an effort to achieve economy, to use an inferior grade of soap in the formula room, just as it would be to use a cheaper grade of suture in the operating room to save money. In each case, a patient's life is at stake. The infant may become a victim of infectious diarrhea because his bottle was not thoroughly cleaned, and the surgical patient may suffer an internal hemorrhage because of the "cheap" suture. Economy which endangers the patient can hardly be considered good. Furthermore, the over-all cost of detergent actually is low, because of the small amount needed in comparison to the amount of soap used by some hospitals.

Long-term economy is best accomplished through use of quality materials in a modern, scientific program for the proper care of nursing bottles and nipples.

Two kinds of deposits must be removed from nursing bottles to prevent stains and film. The *organic* or *vegetable* soil requires an alkaline cleaner to remove it, while the *mineral* deposits require an organic acid detergent to dissolve them.

Personnel should be instructed in the correct measurement of detergents needed for bottle and nipple-washing. They should be reminded that twice as much detergent will not make the bottles and nipples twice as clean. Required measurement of detergents will be practical and efficient service to the department's needs, as well as the hospital's economy.

Cleanliness:

Good housekeeping habits must be taught to prevent unnecessary dirt from accumulating in the formula room. A good place to begin is the hand-washing basin. Smooth tile surfaces on walls and floors are easier to clean. Adequate ventilation will prevent dust, flies and steam from entering the formula preparation room. Lighting equipment should be flush with the ceiling to prevent flies and dust from accumulating on light shades.

Daily cleaning of equipment used for sterilizing and cooling formula is necessary for proper sanitation and to prevent corrosion.

There should be proper storage closets for keeping detergents and formula ingredients separated to avoid error.

Identification of Formula:

Each type of formula must be labeled and dated. If stock formula is used, the type and strength should still be written on each tag. If individual feedings are used, each should have the name printed clearly to prevent error. Each bottle should be nippled, capped, and labeled securely. The use of stainless steel racks, which makes possible a minimum amount of handling, will prevent identification from being removed.

Transfer carts may be needed to deliver formula to each nursery daily. It is advisable that the transfer formula cart be equipped with either a washable or vinyl cover to insure protection of formula in transit. Nursery stations should be equipped with storage refrigerators for a daily supply of formula.

Our hospital has a 64-bed maternity unit and 64 bassinets, which are in six nurseries, including one premature and one recovery nursery. These two contain a total of 10 Isolettes, 10 Armstrong incubators, and eight bassinets. There were 3,490 deliveries in 1960, and approximately 125 infants each year are prematures.

In serving these patients, we prepare 75,000 bottles of formula and 56,000 bottles of sterile water, and use 82 dozen nipples and 12 cases of organic acid detergent a year.

Until recent years, the formula room had consisted of the least-used hot plate or gas jet in a utility room or kitchen near the nursing unit. No privacy or aseptic atmosphere was possible. Patients' needs—such as ice cubes and liquids—were supplied for the entire nursing unit from the same area, even during formula prep-

"Forget about owning a compact car, Mr. Hutchins."

aration period. Then there was sometimes the problem of the friendly coworker who was eager to watch the nurse prepare the formula, because her sister was expecting a baby soon. No scrub-up facilities were available except one sink for washing everything in the unit.

Happily, this undesirable situation has been remedied. The formula room should not be placed where the traffic almost needs a policeman to keep order. It would be most practical to place it where visitors and hospital personnel not connected with the department would be unable to enter.

Suggested Layout:

The ideal formula room should have two rooms, one (the "wash" room) for receiving soiled equipment from the nurseries and the other solely for the preparation, sterilization, and cooling of formula. If a new building is being planned, the architect should be asked to include the double-room layout plan, in an area convenient to nursery personnel, but away from excessive traffic. In an older or remodeled building, the supervisor should suggest locating the room in a convenient area which is well lighted and well ventilated. It is preferable to be able to lock this area after formula-room duties are completed each day.

If the hospital budget can maintain only one room, it should be large enough to facilitate prevention of cross-contamination.

As a further precaution against the spread of infection, isolation equipment should be washed and boiled in the nurseries before being transferred to the formula room.

OB Nursing Conferences Scheduled by ACOG

Five regional conferences on obstetric-gynecologic and neonatal nursing, for registered nurses interested in these fields, are being conducted this fall by districts of the American College of Obstetricians and Gynecologists.

The first two were held in Kansas City, Kans., and Atlanta, Ga., in September. The Penn-Sheraton Hotel, Pittsburgh, Pa., will be the site of the third meeting, October 11-12. The others are scheduled for October 26-27, at the Pick-Congress Hotel, Chicago, and November 16-17, at the Kentucky Hotel, Louisville.

Conferences, patterned after similar meetings held last year, will include formal lectures, panel discussions, and round-table sessions. Program participants will be nurses, residents, and senior physicians from the sponsoring districts.

Advance registration is required for nurses who wish to attend. There is a nominal registration fee. Additional information on the three remaining conferences can be obtained by writing to the following addresses: Pittsburgh meeting—Conference on Nursing, District III, ACOG, P.O. Box 7217, Pittsburgh 13, Pa.; Chicago meeting—Dr. Harold A. Kaminetzky, American College of Obstetricians and Gynecologists, 79 W. Monroe St., Chicago 3, Ill.; Louisville meeting—Ob-Gyn Nurses' District Conference, 611 Heyburn Building, Louisville 2, Ky.

Pittsburgh Conference:

Milton L. McCall, M.D., professor and chairman, department of obstetrics and gynecology, University of Pittsburgh School of Medicine, will be moderator of a panel discussion on "Perinatal Mortality" on the first day of the Pittsburgh meeting. Another panel session, on "The Doctor-Nurse-Aide-Patient Relationship," will be moderated by W. Paul Dailey, M.D., medical director, Harrisburg (Pa.) Hospital.

Topics of discussions on the second day will be "Preparation and Care of the Obstetric Patient—Antepartum, Intrapartum and Postpartum" and "Preparation and Care of the Patient Requiring Hysterectomy."

Reva Rubin, R.N., associate professor of obstetric nursing, University of Pittsburgh School of Nursing, will be the luncheon speaker on the first day, and Nicholas J. Eastman, M.D., Baltimore, national president of the ACOG, will address the luncheon meeting on the closing day of the conference.

Chicago Conference:

R. A. Kimbrough, Jr., M.D., Chicago, ACOG medical director, will be the opening speaker when the Chicago conference convenes on Thursday, October 26. He will discuss "The Present Status of Maternal and Perinatal Mortality." Sister Mary Stella, R.N., supervisor of obstetrical and gynecological nursing, St. Mary's Hospital, Evansville, Ind., will talk about the program of "Family-Centered Maternity Care" at her hospital.

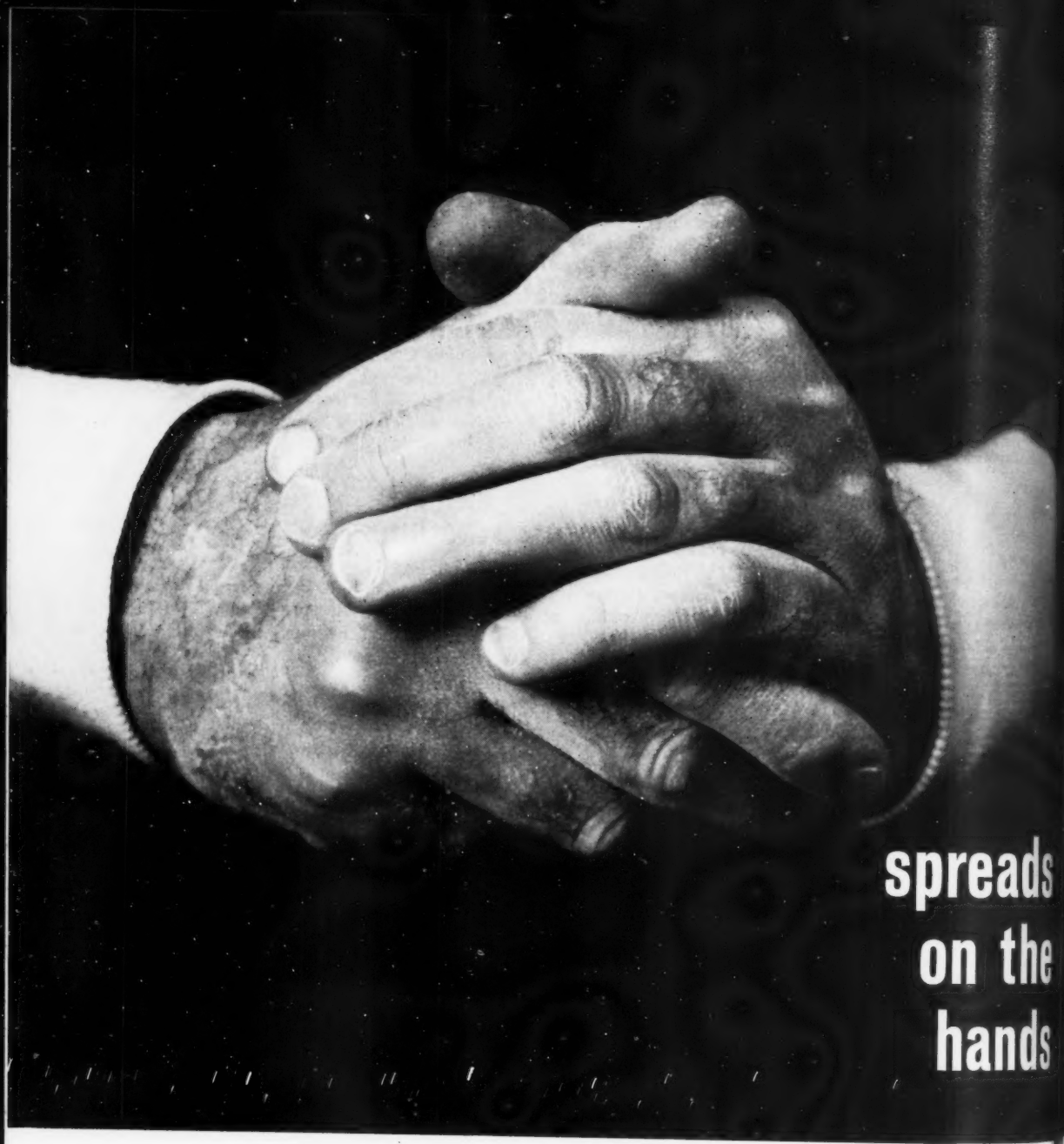
Also scheduled that day are: a talk on staphylococcal infections, by Margaret Thomas, R.N., special nursing consultant, Division of Health Services, Department of Health, Education and Welfare, Washington, D.C., and a panel discussion on Rh-ABO incompatibility.

On the second day of the conference, Helen Creighton, R.N., J.D., Lafayette, La., will speak on "Legal Aspects of Obstetric and Gynecologic Nursing." A panel, moderated by Dr. Eastman, will discuss problems in obstetrical analgesia and anesthesia.

David Smith, M.D., assistant professor of pediatrics, University of Wisconsin Medical School, Madison, will talk on "Chromosomal Abnormalities in the Human." A panel will discuss "The Nurse's Role in Oxytocin Inducton and Stimulation." Moderator will be Ben M. Peckham, M.D., professor and chairman, department of gynecology and obstetrics, University of Wisconsin Medical School, program chairman for the Chicago conference.

Dr. Eastman will be the featured speaker at the luncheon meeting October 26. His topic will be "Obstetrics and Cerebral Palsy." Sister Mary Stella, R.N., speaker at the second luncheon meeting, will discuss "Education of the Obstetrical Nurse."

The complete program for the Louisville conference had not been received by ACOG national headquarters at the time TOPICS went to press. Additional information may be obtained by writing to the address given earlier in this article.



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(Continued from page 9)

Next, the virus particles were whirled in a high-speed centrifuge. The protein jackets of the individual viruses were removed by adding carbolic acid. Another spin of the centrifuge left the bio-chemists with a portion of pure nucleic acid, or DNA.

Next, the cell walls of the intestinal bacteria were removed, and the raw DNA was applied to these open cells. Once inside, the DNA went to work reproducing the same kind of Lambda viruses from which it had come.

Achoo! Hay Fever Agent Isolated

A Chicago researcher has isolated a protein from ragweed pollen which, tests indicated, is the agent causing allergic reactions among hay fever sufferers. The discovery could give scientists a way to build up more thorough and lasting protection in susceptible persons.

Dr. Robert Goldfarb, associate professor of biochemistry, Chicago Medical School, headed the study. The pollen from dwarf ragweed was fractionated into its various components and each tested on the skin of hay fever sufferers.

A single protein substance found in the pollen was found to be from 1,000 to 10,000 times as powerful as the entire pollen in acusing skin reactions in sensitized persons. Some other fractions were completely inactive. When injected into the nasal passages, the protein caused a thickening of the coating.

Good news for the 10,000,000 hay fever sufferers in the U.S.

Youthful Suntan Brings on Aging

Though that summer suntan makes you feel in the pink, it may bring you the blues in a few years. Too much sun—one tan after another—can cause the skin to age ahead of its time.

Skin specialist John M. Knox, M.D., of the Texas Medical Center, Houston, notes that "It is somewhat of a paradox that the young people who are vain enough to want a tan will pay the price years later at a time when they actually need to look their best."

The sun-cooked skin becomes dry, coarse, leathery, and wrinkled, especially above the collar line.

Dr. Knox adds that different persons react differently to sunlight. In general, the lighter the skin the more susceptible it is to the sun's bad effects. This might explain, he states, why blondes frequently show their age more than brunettes.

Backyard Pool Safer than Bathtub

When Junior balks at taking a bath but squeals in delight at the prospect of a backyard pool, perhaps he's got the right idea. According to the National Office of Vital Statistics, more than twice as many persons drown in bathtubs than do in backyard swimming pools.

Statistician Warren W. Morse says latest figures show 5,605 persons drowned in the U.S. in 1958. Of these, 407 drownings occurred at home. Bathtubs accounted for 140 of the drownings; swimming pools 62; wells, cisterns and cesspools, 57; other open bodies of water, 62.

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FOR MORE INFORMATION WRITE:

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Notes on Technics of Intramuscular Injection*

By Samuel Zelman, M.D.**

Intramuscular injections, like many other technical procedures, were originally administered by physicians but have been largely taken over by the nursing profession. This is as it should be, for the physician would be greatly limited in his effectiveness if he were required to administer these himself.

Being no longer familiar with the technical details of the intramuscular injection, physicians may be inclined to treat them perfunctorily. Such an attitude, innocently acquired by nurses, may lead to improper practices of that technic, with resulting unnecessary pain and morbidity to patients. Patients rarely complain of the pain inflicted, for they tend to assume such suffering to be a necessary part of the procedure.

Prior to the introduction in 1945 of penicillin thera-

*Reprinted with permission from the May, 1961 issue of *The American Journal of the Medical Sciences* (Vol. 241, No. 5), published by Lea & Febiger. With the author's approval, the parts of the original article which contained his analysis of results of a questionnaire to evaluate teaching practices have been condensed and combined with the tabulation of replies received, shown in Table 1.

**Dr. Zelman is assistant chief, medical service, VA Hospital, Topeka, Kans., and lecturer in internal medicine, University of Kansas School of Medicine, Kansas City, Kans.

Fig. 1. (Below). Steps in the traditional technic of intramuscular injection into the posterior gluteal muscles. (Reproduced from Stokes, Beerman and Ingraham[9] with permission of the authors and publisher.)

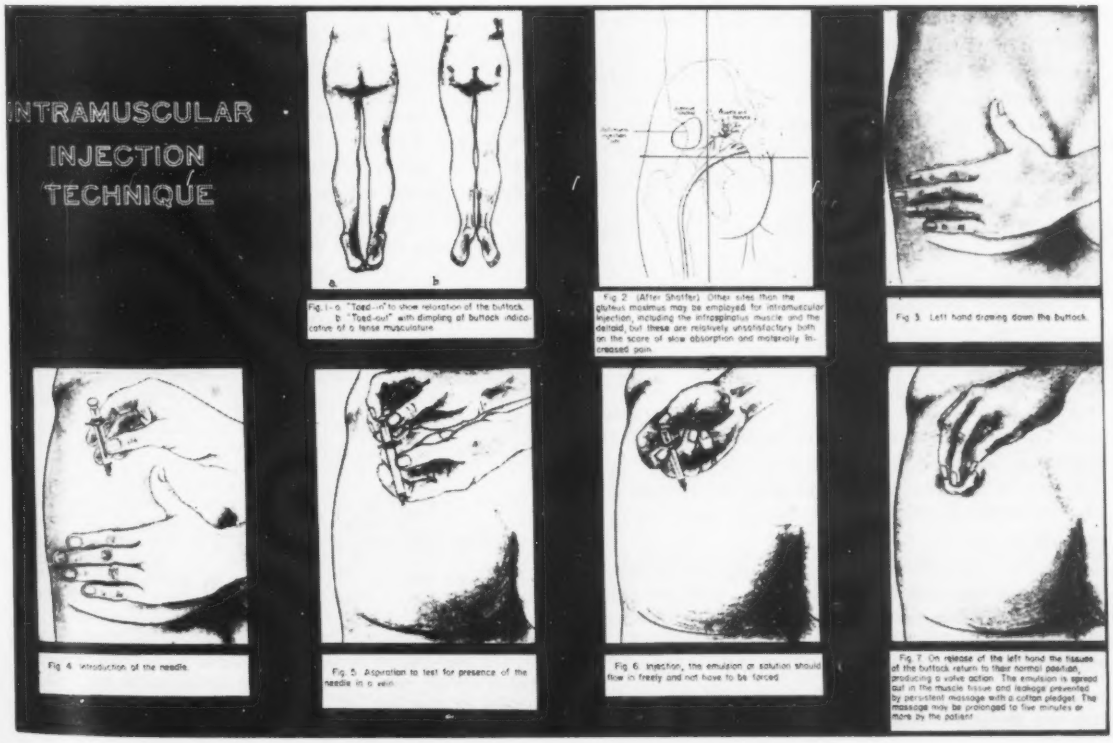
INTRAMUSCULAR
INJECTION
TECHNIQUE
a
b
Fig. 1 - a. "Toad-in" to show relaxation of the buttock. b. "Toad-out" with dimpling at buttock indicative of a tense musculature.
Fig. 2. (After Shaffer). Other sites than the gluteus maximus may be employed for intramuscular injection, including the infraspinatus muscle and the deltoid, but these are relatively unsatisfactory both on the score of slow absorption and materially increased pain.
Fig. 3. Left hand drawing down the buttock.
Fig. 4. Introduction of the needle.
Fig. 5. Aspiration to test for presence of the needle in a vein.
Fig. 6. Injection, the emulsion or solution should flow in freely and not have to be forced.
Fig. 7. On release of the left hand the tissues of the buttock return to their normal position, producing a valve action. The emulsion is spread out in the muscle tissue and leakage prevented by persistent massage with a cotton pledget. The massage may be prolonged to five minutes or more by the patient.

Fig. 2. Painful inflammatory induration ("sterile abscesses") of the subcutaneous tissues of both buttocks following multiple injections over a period of one week. Breakdown of skin on the right side has resulted in seepage and crusting of exudate.

Fig. 3. Radiograph showing subcutaneous leakage and nodule formation following injection of iodized oil into the gluteus maximus muscle. (Reproduced from Shaffer with permission of the author and publisher.)

py, physicians were well taught and practiced in the technic of intramuscular injection by virtue of their experiences in the syphilis clinics. The injection of irritant bismuth or mercury salts required a meticulous technic to avoid disaster. Such a technic was described by Stokes, whose comprehensive textbook of syphilology devoted seven pages to a discussion of the choice and care of needles, eight pages to the technic of intramuscular injection, and four pages to the prevention and treatment of complications of intramuscular injections (Stokes, Beerman and Ingraham[9]). It is surprising how scant are the descriptions found in textbooks of nursing.

Being employed full time in a hospital, I have often observed errors and omissions in the technic of intramuscular injections administered by nurses. In my experience, nurses have taken kindly to correction, and have many times told me that their teaching had not included all such details of technic.

To test the generality of the truth of such a statement, a questionnaire (Table 1) was submitted to the 108 nurses employed at this hospital. The 101 replies which were received proved disturbing in their near universality of error and omission and in their reports of the inadequacy to their teaching. This is probably a representative experience, since our nurses were educated in 55 different nursing schools located in 23 states.

Site of Injection (Fig. 1—2). The upper outer quadrant of the buttock is the site of choice in the traditional method of intramuscular injection. This quadrant allows a maximal thickness of muscle to receive the injected material, so that it may be deeply injected. It avoids the blood vessels and nerves which are present in profusion in the upper inner quadrant, and the great sciatic nerve in the lower inner quadrant. No other quadrant of the buttock is acceptable. Injections into the deltoid or other muscles are less satisfactory, because of the thinness and greater sensitivity of these muscles, and the proximity of vulnerable nerves.

The greatest hazard to which the intramuscular injection into the buttock is subject is injection into or near the sciatic nerve in the lower inner quadrant. Shaffet[7] made a careful study of the anatomy of the gluteal muscles and the distribution of intramuscularly injected substances. He found that injections into the lower central portion of the buttock endangered the greater sciatic nerve if they extended through the gluteus maximus muscle. The more common and temporary sciatic-like pain extending down the back of the thigh he attributed to irritation of the small sciatic nerve which lies immediately over the great sciatic nerve in this area. Injected fluid was well dispersed within the first few minutes, assuming a curved linear distribution within the gluteus maximus, being closely confined to the coarse fasciculi into which this muscle is divided.

The frequency with which injection into or near the sciatic nerve occurs may be gauged by the replies to item 7a in the questionnaire, in which seven or eight percent of the nurses reported having encountered pain or numbness in the foot after injections. Two brief case reports illustrate the morbidity produced by this hazard:

Case 1: A 37-year old man was admitted October 2, 1957, to the Veterans Administration Hospital in Topeka, complaining of pain and weakness in the left leg of five weeks' duration. In August, he had been hospitalized elsewhere for one week because of nervous tension following a bout of alcoholism. He had been given an intramuscular injection of Thorazine in the left buttock. Immediately following the injection, the left foot became numb, and he fell to the floor. Since then, there had persisted severe pain and a burning sensation of the anterior aspect of the left leg and foot. Diathermy and vitamin therapies had been used. The weakness had begun to im-

prove at the time of admission to the Veterans Hospital.

The left Achilles tendon reflex was absent, and there was inability to dorsiflex the left foot and toes. Severe weakness was demonstrable of the flexor hallucis longus, tibialis posterior, and gastrocnemius muscles. Sensory loss was present over the lateral aspect of the left leg and the dorsum of the left foot, corresponding to the distribution of the peroneal nerve.

Treatment consisted of more vitamins, an extension splint for the foot, physiotherapy, adrenal steroid therapy, and hypnotherapy to aid in relaxation of secondary muscle spasm in the leg. By the end of November, considerable improvement had occurred in motor power, but subjective burning and pain continued thereafter, finally disappearing at the end of April, at which time the patient was discharged from the hospital. Examination then showed intact Achilles reflex, and no remaining sensory loss.

Case 2: A 59-year old man was admitted July 14, 1959, to the Veterans Administration Hospital in Topeka, complaining of numbness and pain in the right foot, of two months' duration. He had been hospitalized elsewhere April 9 to May 8, 1959, having entered because of hemorrhoidal bleeding but having been kept hospitalized for neurologic study following the occurrence of a grand mal seizure. During that hospitalization, he had received many intramuscular injections, usually in the right buttock. These were given, according to the patient's story, in lying or standing positions, and in outer or inner aspects of the buttock. Following some of these injections, the patient developed lumpiness and tenderness in the lower inner quadrant of the buttock, pains down his right leg, and numbness of the right foot.

Chronic disabling pain in the right foot began May 5, three days before the discharge from the hospital. In the next two months, the patient was attended by his home physician. Initially, pain involved the plantar area of the foot, and extended to the calf of the leg, posterior thigh and hip. Improvement occurred during the second month. At the time of rehospitalization, pain and numbness were residual only in the foot. Tingling occurred on walking or on contact against the foot. Pain was not accentuated by walking, but tended to be worse during the night. There were no sensations of temperature change.

Examination revealed weakness of the right Achilles tendon reflex, but no muscular atrophy was detected. Pinprick sensation was intact, but resulted in marked tingling and muscular movements of the foot. There was absence of touch sensation on the medial aspect of the base of the right great toe. The right foot was warmer than the left, despite a weaker dorsalis pedis pulse. The left leg showed no sensory disturbances.

During his hospitalization, lasting 11 days, the patient continued to improve, and he was discharged with reassurance of continued improvement.

Position of the Patient (Fig. 1—). The intramuscular injection should be given with the patient in the prone position, toes facing inward and heels outward.

Table 1. Questionnaire Submitted to Nurses, with Tabulation of Replies Received

(Summaries of author's comments appear.)

To ALL NURSES:

Your cooperation in answering this questionnaire is requested in order to evaluate teaching practices in regard to the technic of intramuscular injection into the buttock. You need not sign this questionnaire.

1a. In administering intramuscular injections into the buttock, do you use the upper outer quadrant?
Always 92 Not Always 9

1b. Were you taught the permissibility of use of other quadrants?
Yes 18 No 82 Unanswered 1

[Five of the nine nurses who said they did not always use the upper quadrant were among the 18 who said they were taught that the use of other quadrants was permissible.]

2a. Do you administer such injections in the prone position?
Always 45 Not always 56

2b. Were you originally taught to insist upon this position only?
Yes 47 No 53 Unanswered 1

[Of the 56 nurses who did not always use the prone position, 12 had been taught to insist upon it, indicating the frequency of lapses from properly taught procedure when the subsequent environment proves indifferent.]

3a Do you ask the patient to "toe in"?
Always 12 Not always 84
Unanswered or questionmarked 5

3b. Were your originally taught to have patients "toe in"?
Yes 10 No 86 Unanswered 5

[*Among the 89 who did not always ask patients to "toe in," there were three who wrote in, "Never!" These responses —and the five omitted or questionmarked—probably indicate total unfamiliarity with this part of the technic.*]

4a. Do you draw down the buttock before inserting the needle?
Always 58 Not always 43

4b.Were you originally taught to draw down the buttock?
Yes 46 No 53 Unanswered or questionmarked 2

[*Of the 43 who did not always perform this maneuver, one wrote she made the skin taut instead, apparently confusing this maneuver with the technic used in subcutaneous injection. One nurse reported she had been taught to "draw down on a thin patient, pinch up on a heavy patient." The "pinching up" maneuver would be likely to increase the hazard of injecting near the sciatic nerrve.*]

5a. Do you aspirate for blood prior to injection?
Always 97 Not always 4

5b. Were you originally taught the necessity for such aspiration?
Yes 94 No 7

[*The importance of this maneuver seems to be well known and properly taught, perhaps because the reason for its performance is more self-evident than are those of other details of the technic of intramuscular injection. Of the nursing texts examined, more made reference to this maneuver than to any other specific detail of the technic.*]

6a. D you massage the injection site after injection?
Always 72 Not always 29

6b. Were you originally taught to massage the injection site?
Yes 81 No 14 Unanswered 1 "Sometimes" 5

[*Of the five who wrote "Sometimes," four added that "it depends on the medication. The same answer was given by one of the 29 who did not always massage the site.*]

7a. In your experience, have any patients ever complained of pain or numbness in the foot after injection?
Yes 7 No 93 Questionmarked 1

7b. In your experience, have any patients developed painful lumps persisting for days after injection?
Yes 48 No 51 Questionmarked 2

[*This is an unnecessarily high frequency of such lumps. Six of the nurses added that the lumps had followed repeated injections. Three nurses said that they had followed certain medications; one blamed them on "poor circulation." Thus do faulty technics persist, while their effects are blamed on other causes.*]

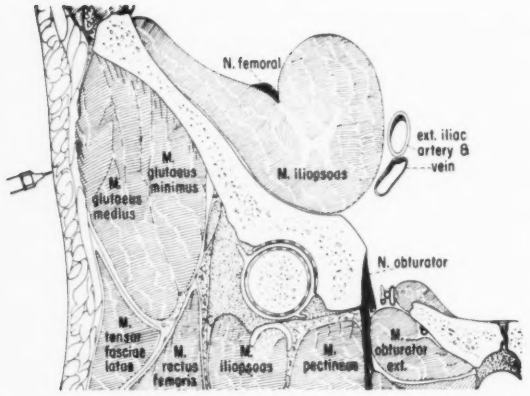

Fig. 4. Frontal section through right half of pelvis at site of ventral gluteal intramuscular injection. Position of needle is indicated. (Adapted from von Hochstetter[4].)

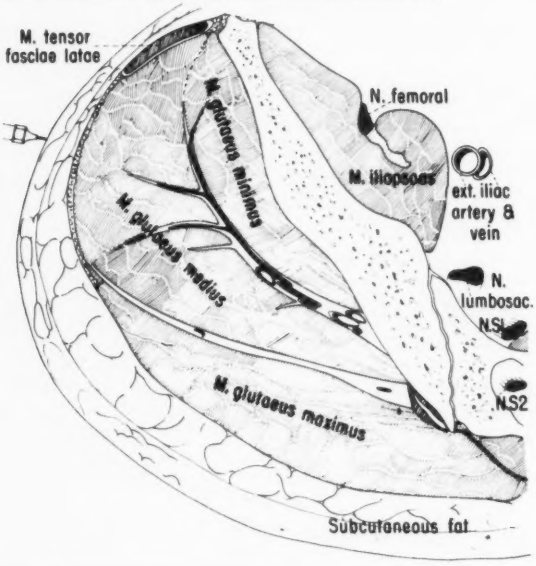

Fig. 5. Cross-section through left half of pelvis, from anterior superior iliac spine to posterior inferior iliac spine. Position of needle at ventral gluteal injection site is indicated. (Adapted from von Hochstetter[4].)

Pointing the toes inward and heels outward causes gluteal muscle relaxation, automatically maintained by the patient. This position is preferred to the position designed to achieve relaxation which is advocated by some authors (Dutton and Lake[1]), in which the patient lies prone with the head turned to one side, the arms hanging over the sides of the treatment table or bed, and the knees bent with a pillow under the shins supporting the legs.

Standing or sitting positions have been described, but add increased hazards. The patient may make a sudden jerking movement at the time of painful entry of the needle. My only personal experience of a broken needle occurred during injection in the sitting position, when the patient made a sudden rising movement on insertion of the needle; incision and probing under the fluoroscope were necessary.

In the standing position, proper relaxation of the gluteus muscle may not be achieved, or the muscle may be sharply contracted on entry of the needle. Injection into a contracted muscle is painful, because the sensory innervation of muscle consists predominantly of pressure-sensitive nerve fibers rather than pain-sensitive fibers. The contracted muscle may fail to accommodate the injected solution, tending to force it back along the track of the needle and into the subcutaneous tissue. The dangers of subcutaneous leakage of injected solution are discussed below in relation to length of needle.

Length of Needle. The needle should be long enough to reach well into the belly of the muscle. Otherwise, there is danger of injection into deep subcutaneous tissue. This point was not included in the questionnaire, but I have repeatedly discovered nurses using needles of inadequate length. Such instances usually come to my notice after a patient has complained of persistent painful deep subcutaneous nodules (Fig. 2).

Many medications require intramuscular injection solely because of the greater pain caused by them if injected subcutaneously, due to the greater subcutaneous sensory innervation. Other medications are injected intramuscularly because of the need for more rapid absroption. Slower absoprtion in the subcutaneous tissue not only defeats the requirement of more rapid systematic effect, but also allows greater tissue reaction to the irritant qualities of the longer persisting medication, leading to persistent painful encapsulated nodules or "sterile abscesses."

A needle of 1″ length is never adequate in any but emaciated adults, while a needle of 3 or even 4″ length may be required in an extremely obese person. Usually, a needle of 1½, 2, or 2½″ length will suffice.

Shaffer[7] produced radiographs of subcutaneous leakage following intramuscular injections of iodized oil, finding that such leakage could be readily prevented by using a needle of small gauge, by drawing aside the skin and subcutaneous tissue of the buttock prior to injection, by making the injection well within the muscle, by leaving the needle in place a few moments on completion of injection, and by applying pressure with a cotton pledge immediately on its withdrawal.

On the other hand, subcutaneous leakage could be deliberately produced by using a large (20-gauge) needle and withdrawing it quickly on completion of the injection, without making any effort to secure the valve action of the skin by pulling it to one side prior to injection. The Roentgen-ray film clearly showed the point of injection slightly within the gluteus maximus muscle, the line of leakage with its collection into a ball-like deposit in the fatty superficial fascia, and extention of the jagged line of leakage to the skin surface (Fig. 3).

Introduction of the Needle (Fig. 1—3, 4). The important part in introducing the needle is the maneuver of retracting the skin and subcutaneous tissues. Theoretically, at least, when the needle is later withdrawn the return of these superficial tissues to their normal positions serves to break the direct needle track, thus decreasing the likelihood or quantity of subcutaneous seepage of injected material from with-

in the muscle belly. A more important function, perhaps, is served by the tactile knowledge thus imparted to the nurse of the approximate location in depth of the firmer muscular tissue underlying the movable subcutaneous mass.

Aspiration (Fig. 1—5). This maneuver is designed to test for accidental entry of the needle into a blood vessel, and is necessary to avoid intravenous (or intra-arterial) instead of intramuscular injection. Many medications designed for intramuscular use would be dangerous if introduced into the bloodstream. Aspiration should continue for five to 10 seconds, particularly with narrow-gauge needles. If blood or any other fluid is obtained, the needle is withdrawn and another injection site chosen.

Injection (Fig. 1—6). A slow rate of injection allows time for distention of an accommodating space within the muscle, sparing the patient the pain sensations of the pressure-sensitive nerves within the muscular tissue. In my observation, more frequent even than a hasty rate of injection in causing unnecessary pain is the failure to have the patient "toe in" to relax the gluteal muscle. A contracted muscle cannot receive the intramuscular injection without marked increase in pressure, producing both pressure pain within the muscle and painful subcutaneous leakage outside the muscle.

A bubble of air in the syringe barrel held upright provides the means for clearing the needle of medication before withdrawal, thus reducing the dripping trail of medication through the subcutaneous tissues on withdrawing the needle.

Massage (Fig. 1—7). Deep, firm massage of the muscle tissue favors spread of the medication through a wider area of tissue, increasing the area of absorption and decreasing the intensity of discomfort. Massage should be performed with the muscle relaxed by the "toed-in" position, for massage of a contracted muscle may increase subcutaneous leakage.

The importance of massage in relation to diminishing pain or discomfort will vary with the quality of medication used; but for the purpose of providing a wider surface for absorption massage is an important part of all intramuscular injections. Even slowly-absorbed depot material requires an absorbing surface, all the more so to prevent pocketing and walling-off by tissue reaction.

The Anterior Gluteal Injection Site

A simpler and safer method of intramuscular injection has become available with the introduction in 1954 by von Hochstetter[2], at the Anatomical Institute of the University of Fribourg in Switzerland, of a new area of choice for intramuscular injection, the anterior gluteal region. In 1955, von Hochstetter published a detailed review[3] of the extensive literature wihch has accumulated on the damaging effects of posterior gluteal injections, and analyzed their causes. The antomy of the posterior gluteal and of the new anterior gluteal injection sites was detailed in a subsequent paper[4], in which an extensive favorable experience with the new injection site was reported.

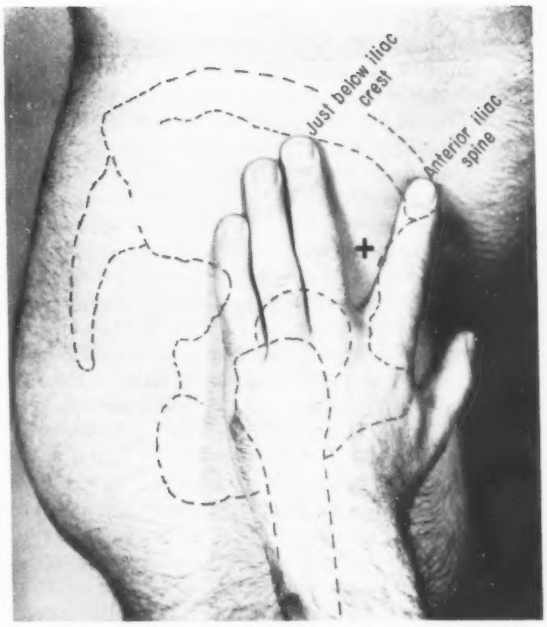

Fig. 6. The two-fingered technic of localization of injection site for ventral gluteal intramuscular injection.

Figures 4 and 5, adapted from von Hochstetter, indicate the anatomical localization of the anterior gluteal injection as seen in frontal and obliquely horizontal body sections.

The anterior gluteal region actually provides a greater thickness of gluteal muscle into which to inject, consisting of the gluteus medius and minimus muscles, rather than the gluteus maximus muscle found posteriorly. No significant penetrating nerves or blood vessels are found in this area, which is served by multiple small nerve and blood-vessel branches. At its depth, it is sealed off by bone from underlying vital structures. The direction of the muscle bundles is such as to prevent a run-off of injected material toward the sciatic nerve, in contact to the gluteus maximus muscle bundles of the posterior injection site.

The layer of subcutaneous fat in the anterior gluteal region is always thinner than that over the posterior buttock, thus reducing the hazard of subcutaneous deposit of medication by short needles. Furthermore, the subcutaneous tissue is looser here, allowing its thickness easily to be determined by raising a skin fold. It is a cleaner area, freer of fecal organisms on the skin surface. It can be readily localized by palpation of available bony markings by simple maneuvers. It can be used in any body position, and is especially suitable for use in patients lying on their backs.

Schmidt[5], at the University of Basel in Switzerland, in a comparative study found the new ventral gluteal injection site preferable to the traditional posterior gluteal site. Despite accurate technic, posterior injections with dye into cadavers resulted in some subcutaneous deposits, while none followed anterior gluteal injections. In deliberate attempts to

misdirect injected dye, using a needle 8 cm. long, he found direct damage of greater vessels or nerves to be impossible from the anterior injection site, though lesser nerve branches could be reached. Comparing 500 injections of each of the two types in both ambulatory and hospitalized patients, he found that the intensity and duration of pain induced was approximately the same for the two methods.

The anterior gluteal injection site is readily localized by palpation (von Rechenberg and Schmidt[6]), as shown in Fig. 6. The anterior superior iliac spine (actuallly a bossy prominence at the junction of the iliac crest with the medial vertical border of the iliac bone) is identified, and the tip of the index finger rested on it. The adjacent third finger is widely abducted (to form a V with the index finger as in the Swiss oath or in Sir Winston Churchill's V-for-victory sign), and its fingertip finds the crest of the ilium in order to slide just below it and rest there. As the palm of the hand then rests on the lateral aspect of the anterior pelvic region, the site of injection is unmistakably outlined by the confines of the triangle formed by the V of the two fingers and the horizontal ridge of the iliac crest above (Fig. 6).

A right-handed nurse injecting into the patient's left side will reverse the positions of the two fingers of the left hand, placing the third finger on the anterior superior iliac spine and the index finger just below the iliac crest laterally. In very obese patients, it may be necessary to lift the abdominal panniculus upward and medially away from the injection site; this is easily done by the patient or an assistant.

The needle is thrust through skin and muscle in a single movement, pointing slightly toward the head, to a depth of 3 to 4 cm. (1-1½″) and the medication injected slowly, after first aspirating for the rare possibility of having entered a blood vessel. If the needle should be pointed too far cephalad, it is apt to encounter bone, in which event the needle is withdrawn partially before injecting. The technic is simple and easily learned.

The method of anterior gluteal intramuscular injection was introduced into the wards of the medical service at this hospital in May, 1959, and has been used routinely since then. Having learned the simple technic, nurses quickly became enthusiastic over its advantages in not having to turn patients and in the marked reduction of the number of details of technic required by the posterior gluteal injection. With increased experience, they became accustomed to the absence of sequelae in the form of painful subcutaneous indurations, patients' discomfort in lying on their injected buttocks, and tingling nerve injuries involving the legs.

Although an energetic program of teaching and encouragement was required to establish the new technic on the wards of the medical service, its spread through the remainder of this large hospital was initiated entirely by the nursing service as a result of the enthusiasm of the nurses of the medical service.

In nearly two years of experience with this method, we have encountered no morbidity. Pain, as Schmidt found, is about the same as in posterior gluteal injections, though painful sequelae are not seen. Patients who are ambulatory sometimes complain of greater pain on walking than they had experienced after posterior gluteal injections. On the other hand, bedfast patients have had none of the pain previously complained of when lying on their injected buttocks. Our experience is in agreement with the Swiss authors that this technic of intramuscular injecion, if not ideal, is the best available.

Summary: 1. The accepted traditional technic of posterior gluteal intramuscular injection is reviewed. The necessity for meticulous care in carrying out the details of that technic is emphasized, if needless pain and morbidity are to be avoided.

2. A questionnaire of nursing practice disclosed remarkable deviation from the details of accurate technic, and revealed a high incidence of needless infliction of pain. Two examples of sciatic neuritis of the author's recent personal experience are cited.

3. A new method of intramuscular injection, proposed by Swiss authors, utilizes the ventral gluteal musculature and is free from hazard of injury to large vessels or nerve trunks. It has proved to be free of morbidity, simple to teach and practice, and almost foolproof of error. It deserves wide adoption.

"A half inch more to the left and I'd have to turn her over to a GYN man."

ACKNOWLEDGMENTS: The cooperation and assistance of Ethel E. Larsen, chief nurse, and of the nursing staff, Veterans Administration Hospital, Topeka, are gratefully acknowledged. Illustrations were prepared by the medical illustration service of the hospital.

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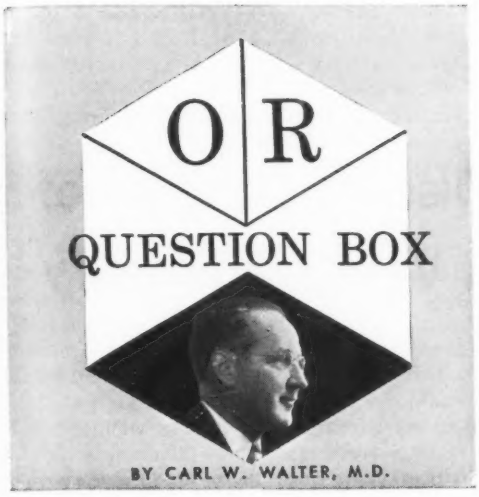

Assisted by Dorothy W. Errera, R. N.

Q. In our 80-bed hospital we use distilled water in the operating room for wetting sponges and laparotomy pads. I have recently heard that other hospitals use sterile tap water or sterile saline solution. Are we wrong in using distilled water? Can we make saline solution in the hospital?

A. Sterile tap water and distilled water are not the ideal solutions for wound irrigations or for use in the operative field. Neither is isotonic. The concentration of each differs from that of body fluids, and the diffusion that results from their use is not conducive to wound healing. Tap water or distilled water infused into an open vein in a wound can cause intravascular hemolysis of red cells and ultimately acute renal tubular degeneration.

Physiological irrigating solutions can be made in the hospital if it has a supply of chemically pure distilled water, a source of pure raw materials, and personnel who will conscientiously render glassware chemically clean. Solutions are always made by weight, and an allowance for loss during sterilization is made. Physiological solutions are not made by dissolving a salt tablet in water.

Q. Our policy committee recently ruled that postoperative patients with drains in place should not be admitted to the recovery room. It seems to us that there are patients who are greater spreaders of dangerous organisms who are routinely admitted for recovery-room care. We would appreciate help in defining a policy for this question.

A. The ultimate decision as to the communicability of a patient with bacterial infection can only be made by the bacteriologist on the basis of cultures of the bedding and environment in which the infected patient is housed. Some patients with infection shed bacteria prodigiously; in others, bacteriologic control is a local problem.

Because of the intense activity and the confined, crowded and intensely-used facilities in the recovery room, general technic should be maintained at a high level of asepsis to prevent cross-infection. Under such circumstances, it should not be difficult to care for patients with infection without hazard to others. Recovery rooms should be equipped with a cubicle surrounded by an ultraviolet barrier to contain the bacteria in such a situation.

The decision as to whether the patient requires hospital recovery-room care should be dictated by his physiologic needs rather than by the fact that he has infection. Usually, infected paients' health is impaired; they require more insight for survival than ordinary elective cases. To abandon an infected patient under these circumstances to an inexperienced nursing unit is not in his best interests.

The presence or absence of a drain has little significance in arriving at the decision as to whether or not the patient is infected. Indeed, most patients are drained for reasons other than infection.

Q. Are brass brads in a shoe heel satisfactory for making the shoe conductive?

A. Shoes with ferrous nails in the heels are not acceptable for use in the operating room because there is always the possibility that a percussion spark may ignite a combustible mixture of anesthetic gases.

Aside from this disadvantage, the shoe with only a brad in the heel is unsatisfactory because minimal contact is made with the conductive floor.

Conductive footwear is available in a wide range of styles to suit need, taste and pocketbook. In making a final choice, one must consider the need for footwear which is hygienic and sanitized as well as conductive. Washable conductive shoe covers or conductive shoes that are amenable to laundering are but two possible choices to achieve a total safety picture.

Q. What is your opinion on the use of ether to clean skin and remove tape postoperatively? I have heard that it is dangerous, but the surgeons still request it.

A. There is one legitimate use for ether on human skin—that is for defatting before certain immunizations or allergy testing. Otherwise ether is an expensive, dangerous, toxic, irritating substance that has no place in patient care except as an anesthetic. Superior agents for removing adhesive tape are available. Furthermore, many patients state a preference for letting residues of adhesive wash away in the course of routine bathing.

CORRECTION OF ADDRESS

In this column in the August issue, reference was made to a film strip on disinfection of clinical thermometers, which is available from the Communicable Disease Center of the Public Health Service. The address, given was the center's former address, in Chamblee, Ga. The present address is: Communicable Disease Center, Public Health Service, Atlanta 22, Ga. Inquiries can be answered more promptly if the correct address is used; however, those sent to the previous address have been forwarded.—THE EDITORS.

Anesthesia Specialists Discuss Dangers of Transfusions, Vascular Surgery

The following abstracts were taken from talks given at the recent congress of the International Anesthesia Research Society, held in Houston, Texas.

Closed Chest Cardiac Massage Will Circulate, Not Ventilate

Peter Safar, M.D., chief, department of anesthesiology, Baltimore City Hospital:

The discovery recently that effective manual systole is possible without opening the thorax has prompted several questions about the new method, and comparisons of it with the older open chest method.

The first question you might ask is "Can the method circulate blood"? The answer is yes. In cardiac arrest patients with absence of sternal pressure, there was either a blood pressure of zero recorded, or EKG evidence of ventricular fibrillation. With sternal pressure, blood pressure neared normal.

The method cannot be relied on, however, to adequately ventilate the lungs. It has previously failed, as in cases of artificial respiration. This is particularly true when the head is unsupported. In spite of the use of a tracheal tube, there may still be zero exchange because of a decrease of lung capacity, and increased surface tension.

Cardiac arrest patients are pulseless, have apnea, are unconscious. Since they are usually also asphyxiated, lungs are ventilated at the beginning of resuscitation. One operator should ventilate, one apply sternal pressure. A third operator, when available, should feel the femoral pulse.

How should ventilation and sternal pressure be combined? If the first operator inflates and the second operator squeezes the chest at the same time, they will be unable to tell if the chest moves, or if the airway is obstructed, particularly in cases without a tracheal tube. We are teaching our teams to inflate, pause, then apply sternal compression. It is possible for one operator to accomplish all parts of the procedure, but exceedingly difficult, since pressure of both hands is required for sternal compression. However, when resuscitating children, the pressure of one hand is sufficient, and one thumb is enough in infants.

Is the closed or open chest method mechanically more effective in circulating blood? In our laboratory test with dogs with fibrillations, we could find no significant difference in blood flow and arterial pressure between the two. Control values in both groups varied from seven to 43 percent.

It is impossible to compare efficacy of the two methods in man, since there are too many other contributing factors. The action of vasopressors, cardiac massage, blood transfusions all interfere with such a comparison. The open method allows adaptation of the rate of compression to filling of the heart. However, the closed chest method may be begun earlier.

There is some trauma involved in closed chest cardiac massage. Fractured ribs and costochondral separation appears in the majority of adults. Only one of our survivors has been treated for a crushed chest. To eliminate trauma as much as possible, pressure should be placed on the lower half of the sternum only, and no greater pressure should be applied than is required to produce a palpable artificial pulse.

Major Vascular Surgery Poses Inherent Anesthesia Problems

Charles H. Williams, clinical associate in anesthesia, Methodist Hospital, Houston; clinical assistant in anesthesiology, Baylor University, Houston:

Anesthesia problems in major vascular surgery are not always readily apparent, but they must be considered in inherent danger. The aim of therapy in such situations is first, the restoration of blood flow.

Hypotension is the most frequent complication in vascular surgery. The condition has a multiplicity of possible origins, and is usually reversible. Promptness in dealing with hypotension is essential. Aortic pressure drops, coronary flow may be reduced up to 50 percent despite compensatory dilation. Even transient hypotension may precipitate further myocardial damage in an already damaged heart. Such patients have a predilection to cerebral thrombosis in intracerebral circulation.

Maintenance of adequate pressure is a first consideration. Temporary shunts and bypass grafts are employed when severity of the hypotension warrants.

Sudden massive blood loss (1500 to 2500 ml) carries with it the inherent possibility of catastrophe. Profuse bleeding (500 to 1000 ml) may occur, with blood appearing at suture lines and pores. Surgical technic will, of course, influence the amount of bleeding, and study of the patient preoperatively will reduce hazards.

Reactive hypotension may appear in the patient who is less seriously ill. This is characterized by a sudden drop in blood pressure. There may be a sudden drop in diastolic pressure. There may be a sudden decrease in systolic pressure following revascularization. In the cases of renal hypotension, pressors are administered several days, sometimes weeks after surgery. Myocardial infarction in these cases is not unusual.

Moderate precipitous increases in systolic pressure seem to have little effect on the heart even though arrhythmias mey be more prevalent at elevated levels. In contrast, the intracerebral vascular system may be vulnerable to transitive hypertension and vascular rupture may result.

Depth of anesthesia and its masking of symptoms may delay recognition of the transfusion of incompatible blood, or of a build-up of potassium in a massive transfusion of banked blood. In the case of high potassium content, cardiac arrest may occur. The situation is more dangerous when the artery has been cross-clamped; concentrations may prove more toxic to the heart.

The transfusion of bank blood has, in the past, caused a mild hypothermia, which can be an important factor in cardiac irritability. Presently, the practice is to heat bank blood to 37°C. to avoid even a mild cooling.

Blood coagulability can be lost in massive transfusion. Unfortunately, this reaction to stored ACD blood is impossible to predict in a given patient. Immediate administration of fibrinogen, transfusions of fresh, whole blood, and large doses of cortisone can alleviate what a potential danger.

Mortality rates in the cases of ruptured aortic aneurysms range as high as 50 percent. Severity of the shock varies with the duration of the surgery. A leaking or a rapidly enlarging abdominal aneurysm near rupture is attributable to the increased abdominal pressure occurring during the excitement phase. Complete rupture with exsanguination is not uncommon following induction of these patients.

The ensuing few minutes after surgery, when the vascular surgery patient is moved, lifted, and divorced from some supportive measures, can be a particularly dangerous time for him. Recovery or intensive care rooms should be utilized as indicated. Complete resuscitation equipment including respirators and defibrillators should be available in case of cardiac arrest. Most important to the patient is the early detection of trouble, and concentrated nursing care.

Age, Duration of Surgery Factors in Transfusion Tolerance

Joseph F. Ruscio, M.D., associate visiting physician, Boston City Hospital:

Administering anesthesia to a patient with acute hemorrhage is a further insult to an already critical condition.

In a recent study, our test sample of patients was of the older age group, carrying with it debilitating conditions associated with advancing age. Diseases of the heart, lungs, liver, kidneys, and endocrine systems were among the most prevalent. There was also an accompanying feeling of apprehension and psychological problems posed difficulties to the anesthesiologist.

The test, run from January, 1958 to December, 1960, had these criteria for selection of test patients; they must have had an emergency operation; must have gone into shock on admission to the hospital or just prior to admission, and have received five or more units of blood.

The test total of 123 patients were divided into two further groups; those that survived and those that did not. The group numbered both males and females, and 54.5 percent were survivors.

Groups were divided again, according to surgical procedures performed. These persons were predominantly gastric bleeders, the majority with full stomachs. Most were alcoholics of long standing.

In the survival group, a total of 631 units of blood were given, or 9.4 units per patient. In the nonsurvivors, a total of 743 units were given, or 13.2 units per patient.

Transfusing large amounts of stored blood can cause citrate intoxiation. During the large transfusion, it is difficult to tell whether hypotension is due to low blood volume or low serum calcium.

One gram of calcium chloride was administered after six units of blood were given, and one gram given with each additional four units. Ninety-three patients received the calcium; 48 expired. Of 41 patients not given the calcium, eight expired.

Operation time was another factor which emerged from test data; in the survivors group, average time spent was two hours, 45 minutes. Average operation time in the expired group was four hours 15 minutes. Mean average age of the survivors was 50.3; while the age of the expiring group was 58.4, of which 65 percent were over 60.

"The patient is a hypochondriac—she lives for the suture."

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By Dorothy W. Errera, R.N.

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Pathological specimens from five male patients with histories of urethral instrumentation had the characteristics of granulomatous lesions. Peculiar staining qualities incited curiosity, and lubricating jelly which had been extruded into tissues was considered as a possible cause. In genitourinary practice, it is common to introduce jelly under pressure to facilitate instrumentation; therefore the idea of the jelly being the culprit was not a fanciful one. Smears and stains of samples of the two jellies in use throughout the hospital were strongly positive; so further investigation was started.

Samples were injected into rats to demonstrate acute histologic reactions. Lesions excised at nine days and at three weeks exhibited all the characteristics of the granulomatous lesions found in the five specimens. Lubricating jellies, innocuous substances as a rule, apparently have a potential for producing granulomatous lesions if there is a break in mucosa and they are introduced forcibly.

Two patients of the five in the study came to autopsy. Lubricating jelly was identified in pulmonary vessels and multiple emboli.

Fallon, R. J.: "Steam Penetration Into Containers for Surgical Dressings." *Lancet* 2:41, July 1, 1961.

In England, dressing drums and metal and cardboard boxes are used more often than ordinary wrappers for packaging supplies for sterilization. The perpetuation of these technics has inspired interest in and enthusiasm for high-vacuum sterilizers which overcome such frustrations to steam sterilization as improper packaging and loading.

But, as the author of this article points out, gravity air-clearance steam sterilizers are and will continue to be in use for some time as efficient, safe instruments of steam sterilization. He cautions that there should be lively concern for penetration of steam and air clearance in these containers as well as with more conventional wrappers.

The first part of this study is not particularly applicable to situations in the United States, where packaging for sterilization is almost consistently oriented to providing individually wrapped supplies. Discussion here more often centers about types of wrappers, and most recently, nylon sheeting has held center stage.

Nylon was included in this study. First, its permeability to steam was demonstrated. Cotton towels were packaged in nylon bags (0.0254 and 0.0508 mm. film). As much air as possible was expressed, and the bags were sealed with a heat-sealing machine. They were weighed before and after sterilization at 126° C. (258° F.)

In all instances, there was a weight gain averaging three to five percent after sterilization, indicating the presence of steam. To rule out the possibility of steam entering through defects in seals, the bags were immersed in water after sterilization. As some air was always present in the bags, leaks would have been detected, but none were found.

Then, similar packs (eight 20x30 towels folded to make 12 thicknesses) were made up and sealed. Thermocouples were passed through a hole in the bottom of each pack, and the hole was sealed with heat-seal tape.

In five out of six experiments the nylon packages required 16-18 minutes more to heat than a 10″x9″ dressing drum with a like load. Slow heating was attributed to the mixtures of air and steam inside the sealed package.

Nylon appears to interfere with heating times not because it offers resistance to the entry of steam but because it impedes the escape of air. Nylon film is described as becoming brittle on repeated use and difficult to seal, particularly after one exposure to steam. As in other wrappers, holes often escape detection. In the high-vacuum sterilizer, sealed nylon bags burst when any appreciable quantity of air was present.

This study demonstrates again that penetration times in the steam sterilizer vary with containers, wrappers, and packaging technics. It is emphasized again that the loosely packaged load offers less resistance to penetration; hence heating is not delayed. Closely woven, impervious materials distinctly impede the flow of steam. For example, the metal box with closely woven built-in filters required 20-30 minutes heating, but when the filters were omitted, the box required only two to three minutes.

EDITOR'S NOTE: Air in a steam sterilizer interferes with sterilization for several reasons: (1) because air-steam mixtures do not develop temperatures characteristic of saturated steam under the same pressure, bactericidal action is decreased; (2) air and steam do not mix, and great variations in temperature

will result in various parts of the sterilizer chamber; (3) air reduces the penetration power of steam by preventing its convection into packages and liberation of latent energy: (4) air prevents mechanical contact between steam and bacteria. Being heavier than steam, it will gravitate and pool wherever there is any interference with its escape.

Miller, Joseph M., Jackson, Deborah A., and Collier, Charles S.: "An Investigation of Plastic Dressings for Clinical Use." *Am. J. Surg.* 102:115 July, 1961.

Plastic spray-on dressings are compounded to adhere to the skin, be nonirritating and nonsensitizing, and provide essentially tough, flexible transparent dressings for wounds.

They are also intended to act as barriers to entry of bacteria to a clean wound and to exert microbicidal action. These two features were studied in three different spray-on dressings available commercially. Two are compounded with bactericides: the third is not.

To test microbicidal action, blood agar plates were streaked with broth cultures of *S. aureus, Strep. pyogenes, E. coli, P. vulgaris, Ps. aeroginosa, Aerobacter aerogenes* after processing and *Candida albicans.* Results showed that no sample was totally efficient as a microbicide. Results were the same when testing was done by placing dried films of sprays on inoculated plates as when sterile discs of filter paper with one surface sprayed were placed with the sprayed surface in contact with the agar plate.

Similar testing showed that no dressing produced a film impermeable to water and *S. aureus* when it was applied on a wet surface.

To test the efficiency of a spray applied to a dry surface, aliquots of broth culture were put on sterile slides and dried for 24 hours at 37° C. They were then placed in broth and incubated at room temperature for 24 hours. The bacteria were not affected by the dressings.

Convinced that the organism being used for the study, *Serratia marcescens,* was neither affected by being placed on a glass slide nor by the application of dressings to the wet smear, the investigators then prepared similar slides, sprayed them twice, and this time dried them for one hour at 37° C. After incubation in broth for 24 hours at room temperature, no growth was recovered.

The same organisms were used for in vivo testing. Aliquots were placed on the skin of several patients. The areas were sprayed twice, and the patients were instructed to carry on as usual, with the exception that they were not to wash the areas. Cultures taken from the films were all negative.

The investigators reason that with a dry surface it should be possible to make an impermeable membrane with the sprays, because the molecules of plastic align themselves in a coordinated film. Also, the more spray used, the more impermeability. Similarly, the smaller the surface sprayed, the more impermeability.

As a result of their investigations, they suggest using the sprays twice and always on dry surfaces. More efficient microbicides in formulae are also urged.

Evans, Joseph P., and Keegan, Harold R.: "Danger in the Use of Intrathecal Methylene Blue." *J.A.M.A.* 174:857; 10/15/60.

For about 30 years, blocks in ventricular systems have been traced through colored ventricle fluid achieved by injecting methylene blue into the cerebral ventricles. Sporadic reports of adverse effects have never discouraged use of the technic.

The authors of this report have collected convincing evidence to confirm the danger of methylene blue in the subarachnoid space. The dye is promptly diffused in cerebrospinal fluid, irritates cranial nerves, and obstructs cerebrospinal fluid pathways. The neurological changes in 14 cases are tabulated.

First Choice of the First Hospitals— Since 1909

Last Night After Work

Last night after work several of the nurses were in my room talking over events of the day in Central Supply. I ran across some unmelted Diacks following one of the autoclavings and one of the girls asked what I did. I said "of course the only thing I could do was resterilize the load, paying particular attention to the temperature and timing." The second time the Diacks were melted.

One of the girls in my room was a student nurse and she wanted to know what caused the trouble. Actually I'd apparently forgotten to be sure the outlet thermometer read 250° before I started my timing. The only thing that saved me was that I was using Diacks.

It showed me the main reason most hospitals are using Diacks is that they know when something has gone wrong—either because of the operator forgetting something or because the autoclave itself is out of whack.

TIME-TRIED Diack Controls

Double-Barrelled Kidney Treats Two at a Time

The twin coil artificial kidney, designed for one person's use, has been modified to treat two patients at the same time.

Drs. Haakon Ragde, Satoru Nakomoto, and Willem J. Kolff, Cleveland surgeons, report that eight patients have been treated two at a time on 17 different occasions. No adverse reaction was observed in any of the patients.

The double procedure allows more patients to be treated in a given period of time and is less expensive since two patients share the cost of one unit and less blood is required to prime one-half of the twin coil kidney.

Stethoscope Beams Heartbeats to Students

A new electronic stethoscope now undergoing clinical trials in Britain is believed to be the first instrument of its kind to reproduce and amplify heart sounds and murmurs for a group audience.

The new apparatus, which enables up to six students using their own stethoscopes to listen in to the heart sounds of a patient, is undergoing clinical trials in a large London hospital.

The heart sounds are picked up by an electro-magnetic contact microphone insensitive to disturbing ward noises. The mike adheres to the patient's chest by a suction bulb. The portable amplifier unit is contained in a fiberglass box weighing only eight pounds.

N.Y. Blood Council Seeks Standardization

First steps to assure a standard blood replacement ratio have been taken by the Community Blood Council of Greater New York.

The Council was set up two years ago following an Academy of Medicine study which was critical of the "disunity, disorganization and disorder" prevailing among the more than 150 blood handling agencies in the city.

While the Council's recommendations are not binding, its member agencies represent virtually all the blood procurement and distribution agencies in the city, including all hospitals. Its recommendations urge that member agencies endorse the principles that there be no profit in blood; that there be a uniform blood replacement ratio of one-for-one; third, that efforts be made to establish a uniform maximum charge for blood.

Quack Arthritis Cures Costing Millions

Although medical science has not found the cause or cure of arthritis, Americans spend some 252 million dollars a year for quack cures and remedies, according to the AMA.

The money wasted annually on these useless treatments far exceeds the private funds available for research into the cause and cure of arthritis. In addition, time and money wasted on self-medication may delay proper medical treatment, resulting in needless crippling.

One such quack cure was ordinary sea water, condensed to 10 times its normal concentration of minerals, and sold at three dollars a pint.

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Workshop Reviews Principles Of Work Simplification

Central Supply

By Minnie M. Armstrong, R.N.*

A worshop on work simplification was sponsored recently by the Central Service Conference Group, District 9, Texas Graduate Nurses' Association, at the VA Hospital, Houston, Tex. Chairman of the workshop was Margaret E. Bourdon, R.N., chairman of the conference group and supervisor of central service at the VA Hospital.

In addition to central service personnel, nurses from several other hospital services were among the 59 who attended. (Registration had purposely been limited to 60.)

Program for the one-day session included: a talk, "Introduction to Principles of Work Simplification," by George M. Fleming, assistant personnel officer, VA Hospital; a film, *Imagination at Work*, which describes work simplification within a hospital; and group discussions on the application of work simplification to specific problems, led by Miss Bourdon; Minnie M. Armstrong, R.N., supervisor, and Lee B. McCulley, R.N., head nurse, central service, Hermann Hospital, Houston; Burnette Mollette, R.N., supervisor of central service, Southern Pacific Hospital, and Lola Smith, R.N., supervisor of central service, St. Luke's Hospital, Houston.

The meeting ended with a discussion of workshop problems, presented by group session leaders.

Following is Mrs. Armstrong's report on the workshop.

Work simplification is really the use of good common sense to find better ways of doing work, nurses were told at the workshop on work simplification, presented recently in Houston by the Central Service Conference Group.

Furthermore, work simplification can and should be applied all the time, in any area, to any job. Good

*Supervisor of central service, Hermann Hospital, Houston, Tex.

Registrants at the Houston workshop. In front row, beginning with the third person from the left, are: Minnie M. Armstrong, publicity chairman; Lola Smith and Lee McCulley, members of workshop committee; Margaret E. Bourdon, chairman of the workshop committee and of the Central Service Conference Group; Marjorie Neel, vice-chairman and program chairman of the conference group; and Burnette Mollette, member of the workshop committee.

Lee D. Cady, M.D. (standing), manager, VA Hospital, Houston, welcomes workshop registrants. Looking on are Margaret E. Bourdon, workshop chairman, and George M. Fleming, assistant personnel officer, VA Hospital, Houston, a principal speaker.

results can be obtained if its application is well planned and organized. A systematic approach should be used which includes these steps:

—Select the work to improve or the problem to solve.

—Do a breakdown of the work to get the facts on the present method.

—Analyze the facts.

—Develop the improvement.

—Check, evaluate, and test the new method.

—Install the improvement.

—Follow up to determine its effectiveness.

Any of the following may be indications of areas that need improvement: Ineffective use of manpower, dissatisfied employees, too much wasted time, poor quality of service, unpleasant or tiresome activities, excessive errors, backlogs, and bottlenecks.

An organized methods improvement program can be an effective administrative tool in combating some of the problems created in hospitals by steadily rising costs, the shortage of personnel, and the increasing complexity of organization required to provide a high standard of hospital service.

Top management, supervisors at all levels, and all employees should be interested in work simplification because it can aid in encouraging self-development for greater responsibilities; making work easier, quicker, cheaper, and more interesting; instilling more confidence in an individual to make things better; creating a better understanding of the abilities of others; increasing job satisfaction; and providing the know-how to increase the individual's effectiveness.

If the maximum benefits are to be derived from work simplification, those involved in the program must be convinced that (1) any job can be improved—that there is no such thing as the one best way, and that (2) no one person has all the answers that rank-and-file employees also have brainpower, initiative and imagination, and can help develop improvements.

Management and supervisory personnel are responsible for creating a "climate" conductive to the development of new ideas which may lead to better ways of doing tasks.

In order to effectively utilize the tools of work simplification, one should have or develop: an inquisitive, open mind that challenges and questions; an imagination which can see beyond the immediate situation; and judgment or common sense to temper the imagination and make sound decisions.

Analyzing a Job

In analyzing a specific job, it should be remembered that every job can be divided generally into these three phases: "make ready" —preparing for work; "do"—accomplishing the work; and "put away"—cleaning up, closing up, disposing of materials.

Once the work to improve or the problem to solve has been selected, the collection of facts should be begun. The first thing to do is to examine closely the way the work is being done at present, and find out what is done, why, where and when it is done, who does it, and how it is done.

It is essential that you gather enough facts to enable you to make an intelligent analysis and decide what improvements are possible.

If the situation is complex, it may be necessary and advantageous to use some of the tools on work simplification, such as the flow process chart work distribution chart, layout studies, work count, and motion economy.

The facts gathered should be analyzed to determine:

—Whether there is misdirected effort—spending of too much time on unimportant details. Wasted time can be considerable when several people are involved.

—What activities take the most time. Are they the ones that should take the most time?

—Whether skills are properly used. Are all employees doing what they can do best?

—Whether work is evenly distributed.

The details should be studied, and every part of the job questioned and challenged.

The Flow Chart

The flow process chart is a graphic report on the steps involved in a procedure or activity. It will show how a job is being done, will highlight areas for improvement, and will serve as a means for describing proposed improvements.

The purpose of the chart is to "break down" the job or procedure in detail, to make clear what is being done, what activities need further study, and what improvements can be made. It also can serve as the means for obtaining employee participation in an improvement program, as a follow-up, and as a progress record.

In gathering data for the chart, you are likely to be successful if you: (1) Explain to each person you interview what information you want and what you are going to do with it; (2) make it obvious to the employee, by being friendly and considerate, that you have a genuine interest in his job; (3) avoid conversational detours—a controlled interview will get more facts, faster; (4) use simple language, trying as much as possible to include terms or phrases that have special meaning to the employee; (5) avoid criticizing or making hasty suggestions; (6) follow the procedure through its successive steps; (7) take notes as you go along—it is impossible to remember all the steps in a procedure and in the correct order.

Symbols are a distinguishing mark of process charts as differentiated from other types of charts picturing the flow of work. In both the single-column and the multi-column charts, five symbols are commonly used to express the basic steps that are involved in a procedure:

- Operation
- Transportation
- Inspection
- Delay
- Storage

Since a process chart is a picture of a procedure, its meaning should be clear at a glance. Standardized symbols facilitate clear understanding. Variations are sometimes added to these symbols. They are useful, for instance, when a step in a given procedure has an unusual aspect which is frequently repeated. A symbol can be devised to illustrate this step, thus eliminating the repetition of work descriptions.

If steps cannot be eliminated or a method improved by changes in the place, sequence, or person, perhaps a new method may be needed to produce the desired improvement. Review the analysis of the facts. Do a little "brainstorming" and record all the possibilities, regardless of how unsound the ideas may seem. When a long list of possibilities has been compiled, study it and decide which one is the most promising.

Check out the idea before implementing it. Review all the previous steps, checking them carefully. Advantages of the new way can be discovered by studying the "before" and "after" work-flow charts.

Be sure that all employees—including other supervisors and their employees who may be affected directly or indirectly by the change—are in agreement with the proposal. What others think of the plan may cause it to succeed or fail.

If the plan passes the evaluation check-out, it is ready to be instituted. It should be installed without delay, and implemented with care. Make sure each person affected is aware of his or her duties and knows how to perform them.

After the method is installed, remember to share the credit with those who made suggestions and contributions. This promotes good public relations, and will be valuable when future improvements are planned.

Observe carefully during the trial period. Problems may arise which will require solution, such as additional training for employees whose duties are affected by the change. Evaluate the new method after it is working smoothly, to see whether it meets with expectations. Continue to observe the operation. The "new" improvement may need improving. Improving is a never-ending process.

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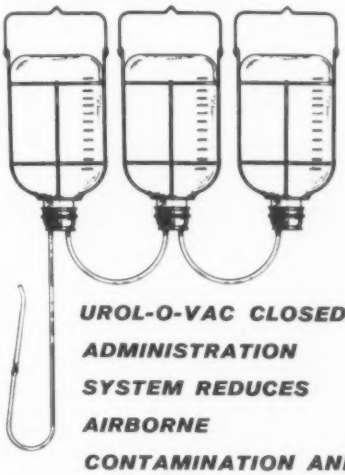

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VA Reports Steady Decline in Active TB Cases

A steady 10-year decline in the number of new cases of active tuberculosis discovered among Veterans Administration patients admitted for treatment of other diseases, and among the agency's employees, was reported by the VA recently.

The rate in the VA's TB case-finding program, which excludes patients admitted for TB, has declined from 58 per 10,000 in 1950 to 10 per 10,000 in 1960. The 1960 figure was based on a total of 1,118,000 persons examined.

The VA conducts a continuing TB case-finding program among its hospital and outpatient clinic patients and employees, and among its volunteer workers, by use of tuberculin tests and chest x-rays.

More than One-Third of Deaths Under Age 65

Despite progress made in increasing the life span, more than one third of the deaths in the United States are among people under age 65, according to statistics issued by the Metropolitan Life Insurance Company.

About 575,000 people die every year before reaching age 65, not counting the toll in the first year of life, the report states. Premature death is considerably more frequent among males than among females.

Accidents rank as the main cause of death among children and young adults, accounting for three fifths of the total mortality among males at ages 15-24, and for nearly one third of the total among females at these ages. Cancer, mainly leukemia, is the second killer at ages 1-24.

Cardiovascular-renal diseases, as early as ages 25-44, out rank all other causes of death among males. Among women at these ages, cancer is the leading cause of death, and takes nearly twice as many lives as heart disease.

Start Science Training In Kindergarten

A recent report published by the American Association for the Advancement of Science calls for "a substantial team effort" of scientists and educators to produce a ten year sequence of coordinated science instruction from kindergarten through the ninth grade.

The report, titled "Science Teaching in Elementary and Junior High Schools," stresses that early scientific training is important because children form "their basic attitudes, patterns of thinking, and modes of behavior" during early years.

Emphasis should be placed on "the spirit of discovery," concludes the report, which was an outgrowth of conferences at Washington, St. Louis, and Berkeley, Calif. The National Science Foundation Sponsored the conferences as part of its program to improve teaching of science mathematics.

Ground Broken for First Army Health Facility

Ground-breaking ceremonies for the first of the U.S. Army's new Health Facilities, to be located at various posts, were held recently at Aberdeen Proving Ground, Maryland.

Scheduled for completion in September 1963, the structure represents a new concept of medical facility developed primarily to provide for the increasing outpatient load which station hospitals have been hard-pressed to accommodate.

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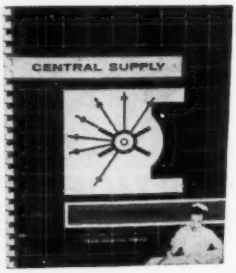

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ACOG Prexy Asks Emphasis On Prenatal Factors

Nicholson J. Eastman, M.D., president of the American College of Obstetricians and Gynecologists, issued a statement recently calling for increased emphasis on factors affecting a child before birth in two new health bills before the Congress.

Dr. Eastman's statement, in a recent issue of the ACOG Newsletter, points out that President Kennedy has forwarded to the Senate two bills concerning child health, human development and the basic sciences.

Senate Bill No. S22639 would establish the Institute of Child Health and Human Development and the Institute of General Medical Sciences, as new divisions of the National Institutes of Health. Senate Bill No. S2273 would authorize research grants for maternal and child health.

"The principle of the proposed new Institute should be supported," said Dr. Eastman, "with the provision that prenatal and other obstetrical factors be given increased emphasis."

Dr. Eastman continued, "This institute could provide the basis for a stepped-up program of research into such specific problems as congenital malformations, infant mortality, mental retardation, and maternal factors which relate to the health and development of the child."

PHS Grants to Nursing Total $1-½ Million

During the fiscal year ending June 30, 1961, the Public Health Service awarded grants totaling $1-½ million for the conduct of nursing research projects and in fellowships to professional nurses undertaking full-time graduate study to achieve research competence.

These funds are for the support of projects and fellowships approved within the year, as well as for continuation of projects and advanced study begun in prior years. Grants totalling $400,000 were made to investigators initiating 19 new research projects.

During the year, 22 additional professional nurses received full-time predoctoral fellowships totaling $250,000.

The funds awarded since July 1, 1960 brings to $5-¾ million the overall sum which PHS has invested in grants for nursing research and in fellowships to prepare nurses for independent investigations of importance to nursing.

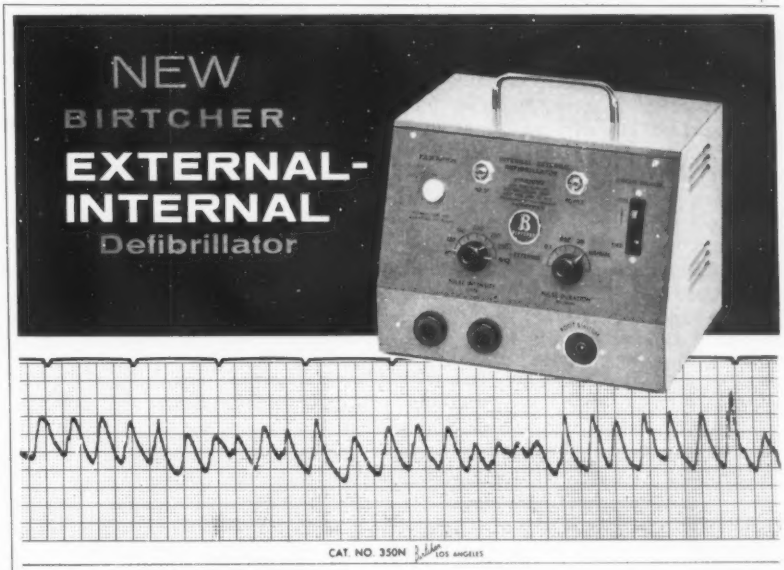
Set Standards for Heart Disease Control Tests

A new "bureau of standards" for heart disease control tests has been established at the Communicable Disease Center, U.S. Public Health Service, Atlanta, Ga.

Measurements of blood levels of cholesterol in individual patients and in large population groups have been an important resource for physicians and scientists seeking to clarify the role of his substance in heart disease. But because standards have never been established to ensure that all cholesterol measurements meet fixed standards, results vary and are often inconclusive.

To help solve this and other problems of achieving dependable, valid and comparable scientific measurements, the new laboratory in Atlanta will provide a central depot of preserved samples of human serum which have been analyzed for their cholesterol content. These will be supplied to laboratories across the country to be used as a primary standard against which the lab can check its own procedure.

Also due for standardization efforts, after the cholesterol system has been established, are anticoagulants and clot-dissolving agents.



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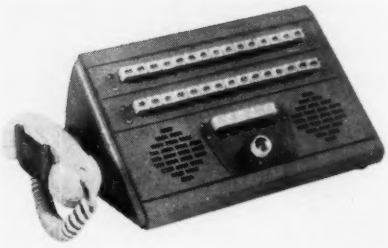
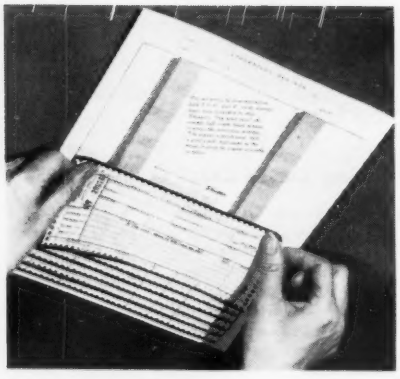


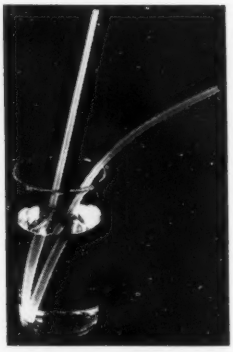
601. Nurses call system

Improved audio-visual nurses call system provides electronic eye, ear, voice nurse-patient communication from one central station or strategically located duty stations. System includes an all-transistorized circuitry, eliminating talk-listen relays, mechanical switches, vacuum tubes and batteries. Conversations from master station are voice controlled. Bedside calls indicated by steady light; bath calls by flashing light. Single control "all call" enables master station to reach all stations connected to it at one time. Built-in speaker permits monitoring of critical patients without using handset. Perry-Briggs Co., 4135 W. 150th St., Cleveland 35, Ohio.



602. Micro-Mount

New method of mounting hospital lab reports on patients' charts eliminates stapling, gluing, taping. To mount a report, two raised tabs are removed to expose pressure sensitive adhesive and report is pressed in place. Micro-mount exposes entire report for microfilming. Similar type, called the Shingler, mounts reports in overlapped fashion for easy reference. Beekley Corp., Hospital Systems Div., West Hartford, Conn.



603. Straws

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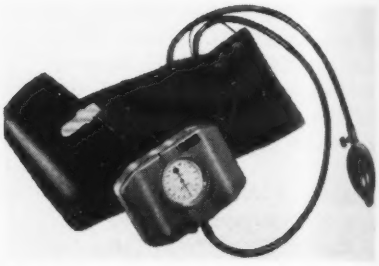
604. Colorcap

Plastic color caps, which slip over top of keys, provide unique key control system. With a separate color assigned to different hospital department, service, control and identification of keys is simplified. Saxton Barrett Co., P.O. Box 1508, Altadena 26, Calif.

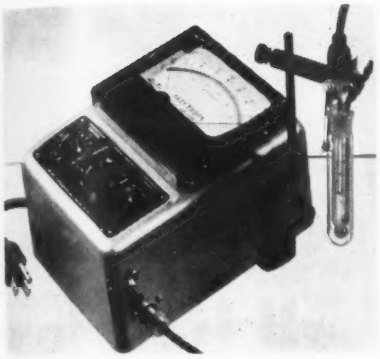


605. Sphygmomanometer

Electronic sphygmomanometer, utilizing transistor circuitry, is said to provide unparalleled accuracy, simplicity of operation. Pulse sounds from brachial artery are picked up by sensitive transducer in pressurized cuff and converted into electrical impulses which are amplified and used to actuate indicator lamp. Lamp provides clear, easily recognizable indications of systolic, diastolic pressure points. Lafayette Radio Electronics Corp., 165-08 Liberty Ave., Jamaica 33, N. Y.

606. Audio analgesia

New audio analgesia system is said to present a radically different approach to control of sensation of pain. Can be applied externally. Uses two types of sound which patient hears through earphones: first is tape-recorded stereo musical program selected by patient; second is "masking" noise which resembles waterfall sound or roar of ocean surf. Music provides relaxing, diverting influence; masking noise "drowns out" much or all of painful parts of procedure. According to the company, it is expected that audio analgesia will play an important role in operations, treatments, diagnostic procedures where it is undesirable to use chemical anesthetic agents. Bay State Electronics Corp., Boston, Mass.

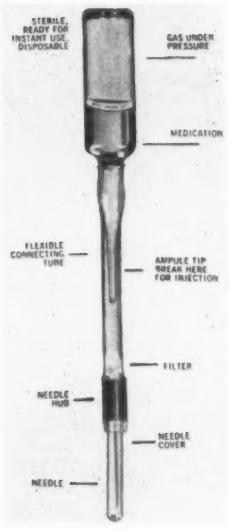


607. pH meter

Electron II line-operated portable pH meter features a ±500 millivolt scale and unique full-range shock-resistant electrode. Features include: constant-reading meter; amplifier-stabilized, drift-free indicator needle; reference pointer; easily connected solid ground; fast-response tubes; 115V line operation. Accurate measurements are said to be obtained from standard full-range combination electrode. Several types of electrodes are also available. Sel-Rex Instruments Div., The Meaker Co., Nutley, N. J.

608. Food service cart

Eight major improvements have been made in this hospital hot and cold food service cart, according to the manufacturer. Improvements include: full length top shelf added; control panel moved to front for better visibility; refrigerated area has easy-to-clean radius corners; doors equipped with lever action latches, flush mounted; improved wheel ball bearings. "Food-ala-Cart" is now available with both anodized aluminum oven drawers and fiber glass oven trays, the latter for use in simultaneous loading systems. Thermo jugs provide, without tempering, hot and cold beverages at proper serving temperatures 1½ hours from filling time. Simple "on-off" hot and cold controls have full view pilot lights. Factory set for dietetically prescribed food temperatures. Nutting Truck & Caster Co., 1201 W. Division St., Faribault, Minn.

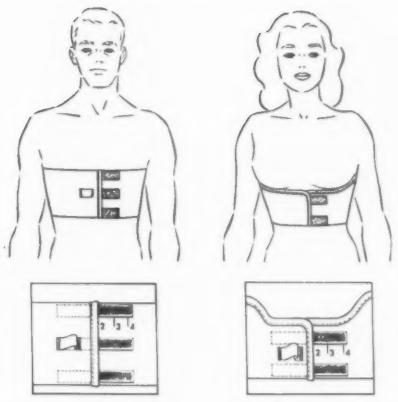


609. Ampins

Transparent, pencil-like injection unit consists of special drawn ampule of parenteral solution, hypodermic needle, needle cover, filter, flexible connecting tube, completely sterilized, ready for use. By bending flexible tube, ampule tip is broken to release medication which is forced by inert gas, into tissue. Assures safe, aseptic administration. Tamperproof; contents cannot be altered or replaced without destroying unit. Moore Kirk Labs., Inc., Worcester, Mass.

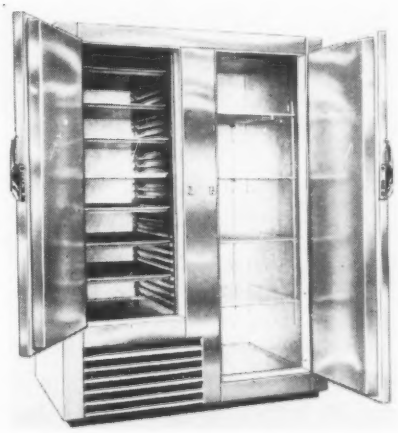
610. Booster

Only current pressure in water line is required for unique instant electric hot water booster heater. Compact device is designed for use with dishwashing machines, other high-temperature water requirements. Calrod (TM) immersion heater imparts full energy; essentially no heat loss or time delay. Increased demands can be met simply by adding additional heating elements. General Electric Co., Commercial Equip. Dept., Schenectady, 5, N. Y.



611. Rib belts

Elastic rib belts, made of heavy, flesh-colored elastic webbing, offer many advantages over adhesive tape strapping according to the manufacturer. Belts greatly increase patient comfort, are easy to remove, reapply for bathing, body rubs, washing of belt. Aloe rib belts are supplied with Velcro, the "touch and close" fastener, said to be a great improvement over buckles. When doctor applies belt, he fits tension, and nurse can re-set it perfectly when reapplying by simply re-setting at proper mark. Belts are edged with soft cotton fleece for comfort. A. S. Aloe Co., 1831 Olive St., St. Louis 3, Mo.



612. Refrigerator-freezer

Additional saving in wall space is provided by a new series of refrigerators and freezers whose narrow, upright design conceals more than 41 cu. ft. capacity. Space economy with large capacity is made possible by new cooling coils, self-contained condensing units and automatic defrosting mechanisms. Baked white enamel is standard finish; units may also be obtained with stainless steel exteriors, fronts. Interior surfaces are stuccoed aluminum with Fiberglas insulation. Doors lock with keys. Nor-Lake, Inc., Second & Elm, Hudson, Wis.

Good for all hands

handy, disposable, moist ZEPHIRAN® *TOWELETTES*

new antiseptic skin cleansing tissues

Zephiran Towelettes cleansing tissues are impregnated with Zephiran chloride 1:750. They are welcomed by hospital personnel as well as by patients. Towelettes provide a handy, pleasant, antiseptic and deodorizing cleansing without the use of water. Inside each individual foil envelope is a conveniently large, moist Zephiran-impregnated disposable tissue — ready to use anywhere, any time.

EASY TO OPEN • EASY TO USE
Available in boxes of 20 and 100.

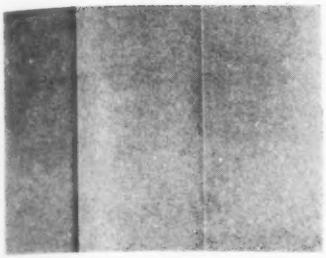
Towelettes contain Zephiran chloride (brand of refined benzalkonium chloride) in an effective antiseptic concentration, perfume, chlorothymol and alcohol 20 per cent.

Hospital and Medical Uses For bedside cleansing to reduce nursing care and time. For patients' use before and after meals. For patients after use of the bedpan. For cleansing of nursing mothers' hands before handling the baby or breast. For cleansing of patients before and after gynecologic examination. For routine antiseptic skin cleansing of patients following operations such as colostomy, prostatectomy, hemorrhoidectomy. For refreshing cooling cleansing of patients with fever, headaches, etc. For first-aid antiseptic cleansing of minor cuts, abrasions and burns. For patients with acne to cleanse the skin during the day. In the doctor's bag for house calls, for use in ambulances, etc.

General Uses In the home, in the hospital, in the office, while traveling, when caring for children and during sports — for a quick fresh-up any time.

Winthrop LABORATORIES • New York 18, N. Y.

Zephiran (brand of benzalkonium, as chloride, refined), trademark reg. U. S. Pat. Off 1531M

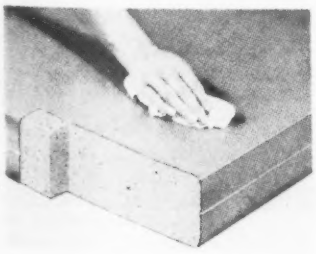


613. Wall covering

New type wall covering designed, styled for hospital applications meets need for easy-to-maintain surfacing. Each of three surface designs is produced in 20 colors keyed to go with metal partitions, hospital equipment. Corlon is heavier than most wall coverings; covers subwall irregularities better, is less subject to impact damage. Resists fading, staining, is easy to clean. No need to refinish every few years. Armstrong Cork Co., Lancaster, Pa.

614. Dried egg solid

Improved blended egg solids product is made from fresh eggs blended with stabilizing carbohydrates. DEB has broad range use in baking; will be available in three varieties: Formula W for recipes calling for whole eggs; Formula A for fortified whole eggs; and Formula Y for egg yolks. Tests indicate products made with DEB show improvements in flavor, color, and texture, with more moistness, added volume. Always ready for use, requires no refrigeration, assures uniform baking results. Product is packed in 50 and 150 lb. easy-stacking fiber drums with sanitary polyethylene liners. Armour and Co., P. O. Box 9222, Chicago 90, Ill.



615. Mattress

Syko 5000 mattress has new type core and covering. Lightweight polyether foam core won't lump, mat or break down. Nylon-impregnated cover is new medium weight, flexible, washable, odorless, fire-resistant and waterproof. Easier to use, easier to handle (mattress weighs 12 lbs.) Karoll's, 32 N. State, Chicago 2, Ill.

616. Texolite

New thin plastic laminate is designed especially for vertical surfaces. Ideally suited for many vertical applications where intense use and abuse are not present, it is also lower priced than standard grade Texolite. Available in several finishes, sizes. General Electric Co., Laminated Products Dept., Coshocton, Ohio.

617. Disposable diapers

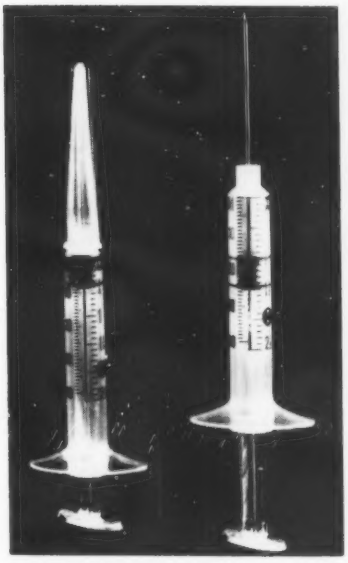
An absolutely sterile, disposable diaper, specifically designed for infants under 10 lbs., has been developed by J & J. Patient ready, they are chemically sterilized, guaranteed to remain sterile until package is opened at cribside. Used once, then discarded. In addition to the safety factor, diaper is time-saving, economical—eliminates laundering, sterilizing, folding and replacement costs of cloth diapers. Inner facing is new 'Sofnet' fabric to protect delicate skin, mucous membranes. Johnson & Johnson, New Brunswick, N. J.

618. Coffee break kit

A single-cup coffee break kit, for use in hospitals, offices, institutions, contains instant Maxwell House coffee, Pream, sugar and stir stick. All items are packed in cardboard kit, packed 50 to a carton. General Foods Corp., Institutional Products Division, White Plains, N.Y.

619. Ligature

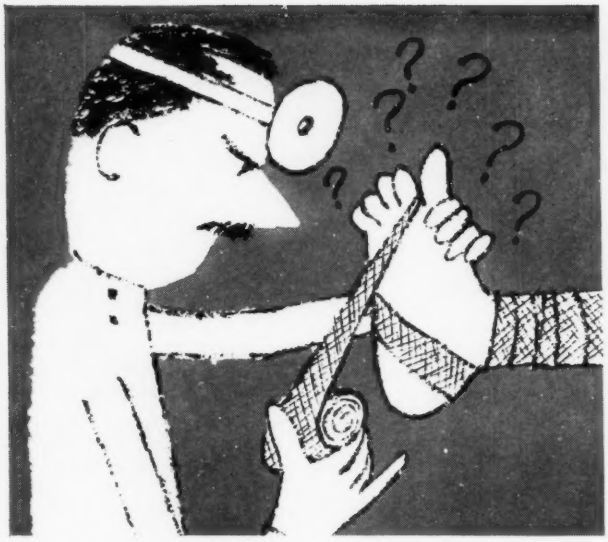
New line of "Ligapak" ligatures features a completely new plastic dispenser reel that assures precise control while ligating, greatly reduces preparation time in the O.R. Reel runs freely but can be braked with slight pressure of surgeon's thumb. Said to eliminate danger of surgical gut receding or springing out; features pliant inner reel to assure optimum protection of ligature material. Radiopaque for extra safety. packaged sterile in new dry packaging. Ethicon, Inc., Somerville, N. J.

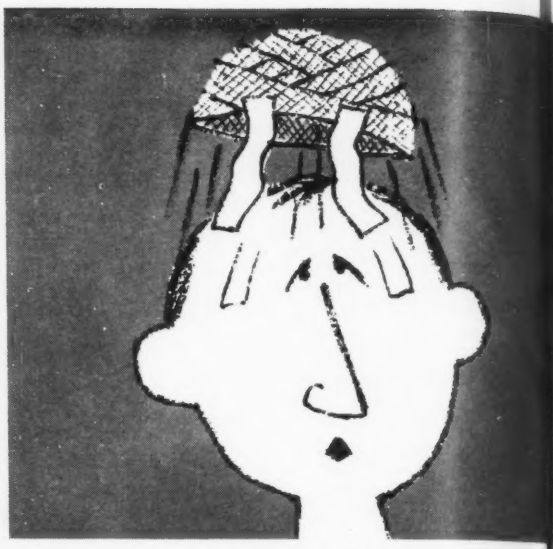


620. Disposable syringe

Newly-designed disposable medical syringe, Super-Jet, features barrel of polypropylene. This completely inert material makes possible use of syringe with all types of medication. Plunger is inert rubber. Special design features include: newly designed finger tabs for firm, comfortable grip; extra long flange at top of barrel, giving added stability to plunger; new technic in bonding needle to barrel with high-strength epoxy glue. Color-coded to indicate needle size. Protective needle guard has straight inside taper eliminating possibility of damaging needle point. Mills Hospital Supply, Sub. of Cenco Instruments Corp., 6626 N. Western Ave., Chicago, Ill.

For further information see postcard opposite page 128.





Do problem areas tax your ingenuity . . . . . dressings unexpectedly pop off . . . . . be

Elastic-weave **KERLIX** dressings cushion and protect difficult areas–and go on in half the time!

Do not wrinkle or lump up. Won't slip off or cause tightness during swelling. Cost less, too, because you use fewer dressings.

Kerlix enables you to come up with a thoroughly cushioned bandage in half the time. Its multi-ply construction means fewer turns per bandage. And, once in place, Kerlix *stays* in place.

What makes a Kerlix dressing so unique is the way it's woven. The threads are permanently crinkled by a special process to give a mild elasticity to the gauze. This crinkliness and the multi-ply thickness are what give Kerlix its exclusive quality of fluffiness and exceptional conformability. And it means an extra cushion of protection, too.

Kerlix is fully absorbent. It works wonders in hard-to-bandage areas like the head and extremities. Or for burns or amputations where gentle, even pressure is desired. For all its benefits, Kerlix costs far less per dressing than ordinary gauze. Call your Curity representative for full details about *Kerlix dressing rolls.*

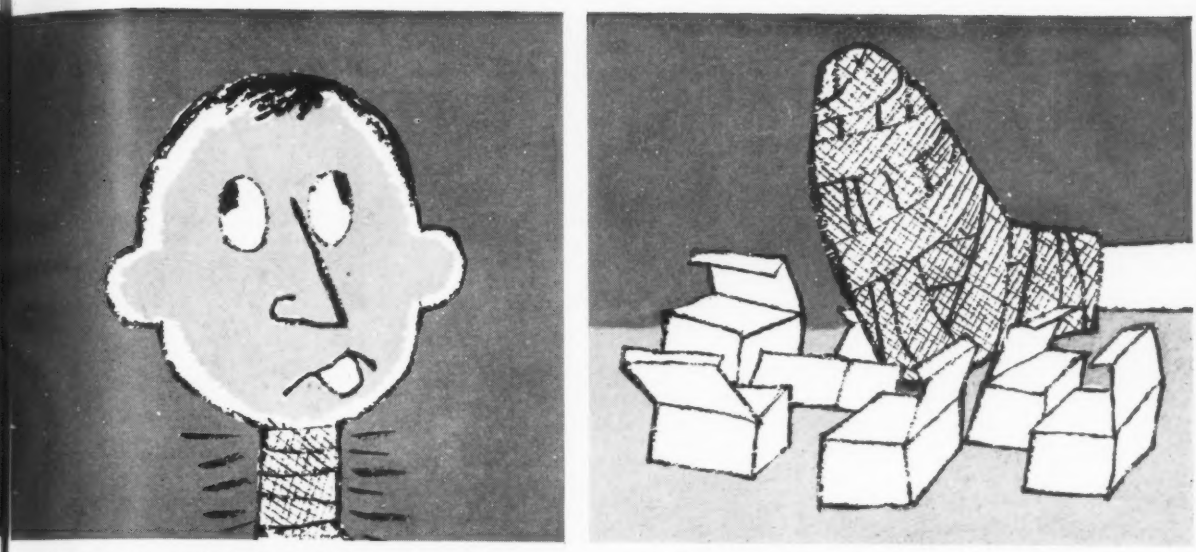
Kerlix photo unretouched

KERLIX rolls (4½ yds. long x 4½ inches wide) are available in cases of 100 rolls each individually wrapped, and in boxes of 12 rolls.

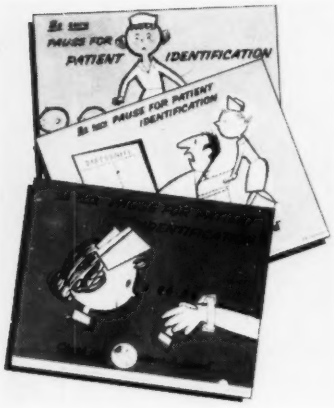
Curity®

THE KENDALL COMPANY

BAUER & BLACK DIVISION

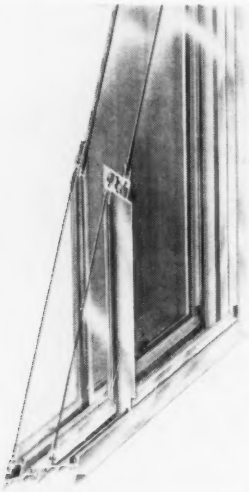


....become uncomfortable because of swelling . . . . . take boxes of gauze to cushion a wound?



621. Posters

Series of colorful posters stress the importance of positive patient identification. Cartoon-style, they are designed to remind all hospital personnel to check patient identity before administering treatment or medication. Various "tongue-in-cheek" situations are a humorous reminder of a serious business. Hollister Inc., 833 N. Orleans, Chicago 10, Ill.



622. Windows

Combination inside (prime) and outside (storm and screen) window unit with ingenious "Thermo-Barrier" separation, has been designed to solve hospital problems. "Thermo-Barrier" is unique rigid vinyl strip between inner and outer aluminum frame, which reduces amount of heat or cold transfer. Special-strength extruded aluminum is anodized, prevents discoloration, deterioration. Never needs painting, puttying. Available in double-hung (vertical) or glider (horizontal) series. Outside frame houses self-storing storm, screen panels. DeVAC, Inc., 5900 Wayzata Blvd., Minneapolis 16, Minn.

623. Autoclave cleaner

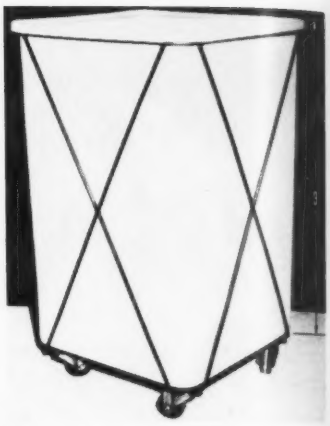
Easy-to-use, inexpensive product has been introduced for maintaining autoclaves, sterilizers. Master Autoclave Kleener is said to be safe, stable, non-acid. Once accumulated deposits are removed, cleaner is added whenever water is used, keeps machine clean permanently. Unconditionally guaranteed. Master Specialty Products Mfg. Co., 165 Nye Ave., Newark 12, N. J.

624. Sensitivity test

ANKH Plate, a new ready-to-use antibiotic sensitivity test, employs new peg-plate method of testing. After inoculating sterile prepared agar media plate with the specimen, lab technician simply removes peg plate containing antibiotics from foil pouch and places it on agar plate. Results ready after 6-18 hours incubation. Deposition of known quantities of antibiotic overcomes several problems contributing to inaccurate results. The ANKH Plate is said to be solution to need for accurate sensitivity tests in smaller hospitals lacking complete lab facilities. Intra Products, Salem Ave. Dayton 6, Ohio.

625. Shoe white

New shoe white in plastic squeeze bottle applier, makes it particularly suited for quick touchups during working day. Has good whitening and no-rub-off properties, according to the maker. S. C. Johnson & Son, Inc., Racine, Wis.

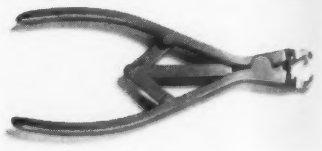


626. Plastic containers

Large polyethylene plastic containers, available in cylindrical and rectangular (shown) shapes, are chemical, stain resistant, easy to clean Tough and flexible, they will withstand severe hospital usage. Can be placed in frames with roller mounting, or equipped with handles, lids or legs. Waterproof, can be steam cleaned; used for storing ice, liquids, powder or detergents. SinTrex Div., Amos-Thompson Corp., Edinburg, Ind.

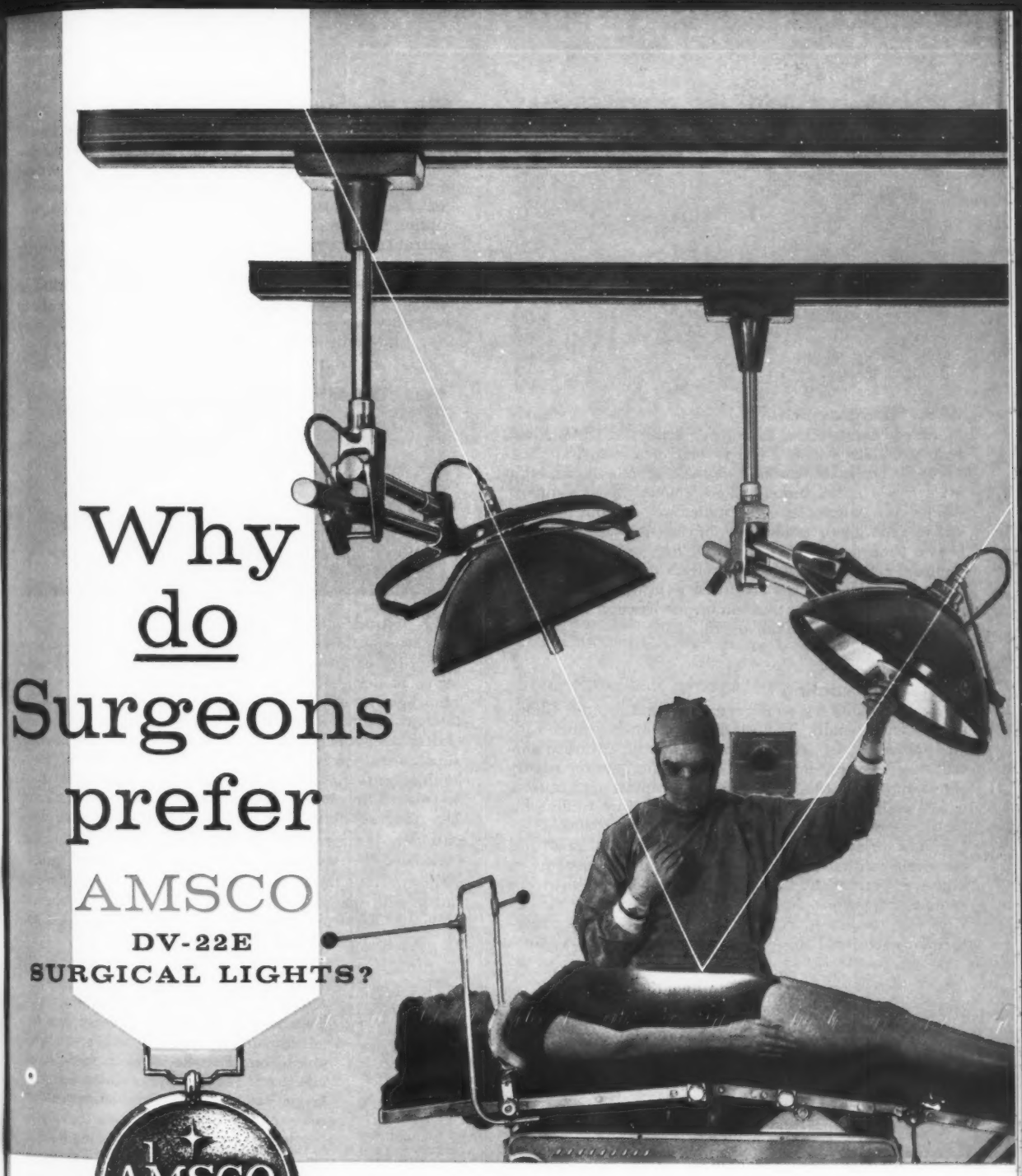
627. Two-way radio

Outercom two-way radio provides low-cost radio communications designed for maximum efficiency through radio-disptached ambulances. At a small cost, hospital can equip each vehicle in a matter of minutes, and since unit is completely interchangeable, it can be switched from a disabled vehicle and reinstalled in just 37 seconds, according to the manufacturer. Outercom operates on all common power sources. Outercom Electronics Corp., 502 Charlottetown Mall, Charlotte, N.C.



628. Cord bander

Unique umbilical cord bander, made of satin finish, easily cleaned stainless steel, has advantages of economy, reliability. Offers ease of application, complete freedom from bleeding of cord, rapid drying of cord. Each bander is packed with one package of bands, which are autoclavable, pre-cut to size, made of specially selected surgical rubber. Stanbio Instruments, Inc., P. O. Box 297, Hallettsville, Tex.



Why do Surgeons prefer AMSCO DV-22E SURGICAL LIGHTS?

AMSCO dv-22e

The twin reflectors provide cool, shadow-reduced "surgical light" for *every* procedure.

AMERICAN STERILIZER
ERIE • PENNSYLVANIA

Of course the ultimate reason is for better visibility . . . under cooler operative conditions. However, another factor affects th surgeon's preference . . . *his confidence in the integrity of Amsco lighting research* For years, knowledgeable surgeons the world over have looked to Amsco' proved "dual video" principles for more effective surgical illumination.

DV-22E accepts this challenge of continued trust. It is a surgical light o *abundant color-corrected, cool illumination.* Two highly efficient polished reflector permit excellent shadow reduction. Each may be guided easily, smoothl by the surgeon or his nurse along strong, 9-foot extruded aluminum tracks Whatever the procedure, DV-22E will fulfill every operative lighting need

For your copy of "LIGHTING FOR THE HOSPITAL," *write for LC-122.*

629. Fiberglass chairs

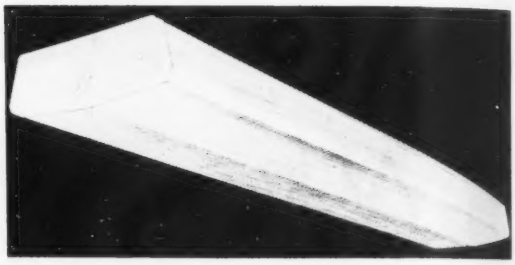
Moulded, lightweight fiberglass arm and side chairs with steel legs are suited to variety of low-cost applications in hospitals, nursing homes. Available in eight attractive colors; black baked enamel legs standard. Chairs are comfortable, moulded to contours of the sitter. Fiberglass, famous for strength, will withstand heavy shocks, is easily cleaned, fire resistant. Manufacturer claims chairs have strength to withstand many times normal use. Legs are fitted with swivel glides allowing easy movement, minimum depression in carpets, floors. Emeco Corp., Hanover, Pa.

630. Wall coating

Ceramix, a sanitary wall coating, is said to offer highly satisfactory results in hospital applications, plus substantial saving in original labor, material, future maintenance. Coating looks, lasts like tile, at reportedly about one-third the cost of tile. In hospital applications, where walls must withstand abuse of heavy traffic plus daily cleaning, product is reported highly successful. Ceramix is sprayed directly on any clean structural material, painted or unpainted. Said to be economical, sanitary, permanent and attractive. Available in many color combinations. Application is comparatively simple. Kits are pre-measured at factory to assure correct mixture for each job. Preco Chemical Corp., Westbury, N. Y.

631. Heat panel

T-E-C, an electric panel, is said to put a "comfort zone" around hospital windows by both radiant and convective heat. Installed beneath window, unit radiates 65 percent of heat to create warm area; by convection 35 percent of heat rises to form curtain of warm air over glass, preventing fogging, frosting. Panels can be thermostatically controlled individually or collectively. No moving parts; instantly ready for use, an important advantage during spring and fall fringe days. Easily coordinated with any heating system. Requires only slight recess in wall, only one run of electrical conduit. Electric Heating Div., Lite-control Corp., Watertown, Mass.



632. Fluorescent fixture

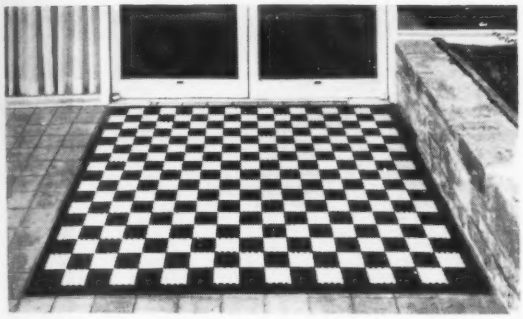
New wraparound fluorescent fixture built for surface mounting in either individual or continuous row patterns, is designed in shallow modern styling to combine lighting efficiency, eye comfort. Wraparound plastic lens provides shielding; fixture carries totally enclosed steel top plate, return end caps provide finished appearance, prevent light leak. Silver-plated lamp holder contacts assure positive lamp starting. Fixture is painted in durable all white baked enamel finish. The "Stylus" fixture is easy to install; top-plate construction permits 'flat against the ceiling' positioning. Provision in end caps for positive fixture alignment in rows. May be wired singly or in continuous units. For use with two 40 watt rapid-start lamps. Sylvania Electric Products Inc., Box 831, Wheeling, W. Va.

633. Intensive care beds

Two new intensive care beds, one for adults, one for pediatrics, are available from Hill-Rom. Both beds have anodized aluminum ends, sides and large ball bearing conductive rubber tired casters, making them light, safe for easy moving. Ends are removable, sides can be raised with one hand. Moulded bumper around entire frame provides protection to walls, doorways. Entire mechanism of both beds is enclosed in center channel with removable top. Cleaning area is free of obstructions. Easy-to-operate cranks enable attendant to place bed in any spring position. Adult bed has six IV rod receptables, pediatric bed has two. Adult bed can be quickly converted to emergency delivery table. Sleeping surface of adult bed is 30x78″; pediatric, 30x 54″. Extra equipment includes: special IV rod, chart holder, drainage bottle and oxygen tank holders. Hill-Rom Co., Inc., Batesville, Ind.

634. X-ray film

New medical x-ray film, believed to be fastest in world, has been announced by Eastman Kodak. When exposed with screens, speed of improved emulsion is 50 percent greater than old Royal Blue Medical x-ray film. Combines high speed with low fog and improved keeping characteristics. Will give clearer images with shorter exposures, particularly valuable where stopping involuntary body motion is important. Will also increase capability of x-ray equipment of limited power, such as portable units. High speed of new emulsion is achieved with full manual film processing or by Kodak medical x-omat processing system. Speed increase permits one-third reduction in screen exposures. Eastman Kodak Co., Rochester 4, N. Y.

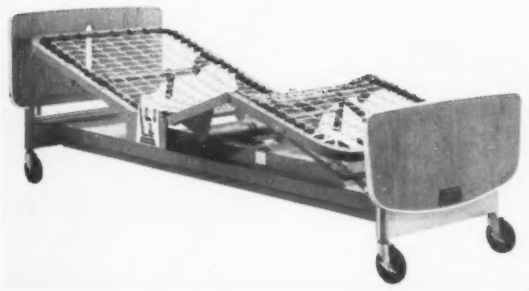


635. Floor mat

Attractive floor mat, with added feature of being completely reversible is made of 4x4″ sections of ribbed polyvinyl chloride. Flexible wiping blades are effective dirt traps; actually "scrape" bottoms of shoes of persons entering hospital. Interlocking sections give "no hole" construction which means safety, even with spike heels—a must at any public entrance. Blocks for new mat are available in variety of colors, allowing solid or checkerboard design to harmonize with floors. Steel bar reinforcing eliminates corner curling, protects mat while it is being handled. American Floor Products Co., 4922 Wisconsin Ave., N.W., Washington, D.C.

636. Patient service system

Centron 10 system is said to consolidate in one central console ten hospital patient services commonly installed separately. Facilities include general room lighting, reading lamps, examining lamps, telephone outlets, electrical outlets, intravenous supports, audio-visual nurse call, and oxygen and vacuum systems. Unit is equipped with electronic intercom which permits natural two-way voice communication. Eliminates need of rolling gas tanks into room, console is designed to receive variety of oxygen, vacuum equipment. Outlets and wiring compartments make it easy to add appliances such as TV, radio; permits use of electric razor, diathermy or other electrical equipment. Light producing portion of Centron 10 provides pleasant indirect illumination. Narrow beam reading light and color corrected examination light are on extendable arms. Sunbeam Lighting Co., Los Angeles, Calif.



637. Electric bed

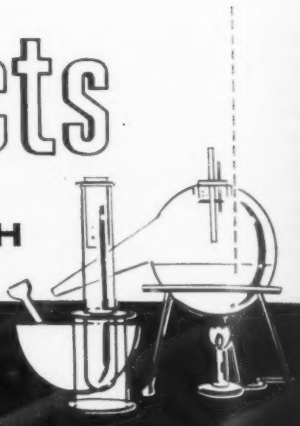
New model #68 Hilow all-electric bed has fingertip controls mounted on both sides for easy access of patient, nurse. Any height, spring position may be had at the touch of a finger. Controls can be deactivated in any position by recessed bump-proof cut out levers. Fewer electrical parts—only five besides the 1/12 H.P. motor. Head, foot sections elevate to all required positions. No obstructions to impede thorough cleaning. Mechanism is fully enclosed in trim, secure welded frame housing. All exposed metal parts of foot end, inner legs covered with stainless steel. Mops, floor machines will not chip paint. Foot end casters recessed to prevent tripping. Spring height adjusts from 26″ to 17″. Hill-Rom Co., Inc., Batesville, Ind.

638. Ultrasonic cleaner

Hospital size ultrasonic cleaner, featuring easily detached vibrator section, is designed to clean large loads of surgical instruments ultrasonically. Said to remove every trace of foreign matter, contamination. Instruments are placed in special solution, vibrating sound waves clean instruments in seconds. Because of modular construction, electronic vibrator section can be detached from tank if repairs are necessary. Tank is heavy gauge, corrosion-proof, self-cleaning stainless steel. One-piece construction eliminates seams, crevices. Cleaner has 100-gallon capacity. Ultrasonic Industries, Inc., Ames Court, Engineers Hill, Plainview, L. I., N. Y.

Finer new products

FROM PERRY RESEARCH



new Perry

PENROSE
Drainage Tubing
made of pure latex

Radio opaque and x-ray detectable at no increase in price!

The new radio opaqueness of Blue PENROSE shows the tubing clearly in x-ray. Its uniform smooth texture is free from thin spots or bubbles. Eight sizes are available: ¼, 5/16, ⅜, ½, ⅝, ¾, ⅞ and 1 inch . . . packed one dozen to a box.

36 inch length - 612 18 inch length - 612A

Insist on Perry Blue Radio Opaque Penrose and eliminate guesswork!

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MASSILLON, OHIO

A four-week course on administration for hospital volunteer directors was held recently on the University of Chicago campus. The course was conducted by the graduate program in hospital administration of the university and was sponsored by the AHA. Emphasis of the course was on general management concepts with special attention given to the particular problems of the hospital volunteer service. Participants in the course were (l. to r., front row) Evelyn A. Miller, VA Hospital, Chillicothe, Ohio; Mrs. James R. Webster, Cook County Hospital, Chicago; Marilyn Silver, New Mt. Sinai Hospital, Toronto, Ont., Can.; Janet E. Morris, VA Hospital, Hines, Ill.; Mrs. F. T. Cook, Methodist Hospital, Gary, Ind.; Mrs. J. E. Walton, Baptist Memorial Hospital, Oklahoma City; Jean Stegmeir, Baptist Hospital, Pensacola, Fla.; Mrs. C. R. Brewer, Chicago Osteopathic Hospital. Back row, l. to r.: Esther Neiner, Lake County Memorial Hospital, Painesville, Ohio; Mrs. John M. Seaton, St. Luke's Methodist Hospital, Cedar Rapids, Iowa; Agnes McDermott, University of Chicago Clinics; Robert B. Rau, Department of Mental Health, State of Tennessee, Nashville; Mildred Prevo, Vanderbilt University Hospital, Nashville; Naydene Massey, Passavant Memorial Area Hospital, Jacksonville, Ill.; Jane Warren, Presbyterian-St. Luke's Hospital, Chicago; and Ruth Lietta, Milwaukee County Institutions and Departments, Milwaukee, Wis.

Personally Speaking

Joseph Aponte—has been appointed administrative resident, Santa Monica (Calif.) Hospital. He is a graduate of the University of Michigan's hospital administration program.

Martin I. Blake, Ph.D.—has been named professor and head of the department of pharmacy, College of Pharmacy, University of Illinois Chicago Professional Colleges. He was formerly associate professor of pharmacy.

Dr. Harris F. Bunnel—has been appointed superintendent, Eastern State Hospital, Medical Lake, Wash. He has been acting superintendent since the resignation of **Dr. G. Lee Sandritter.** At the same hospital, **Ralph E. Edwards** has been named business manager, succeeding **Gail W. Talbot,** who resigned.

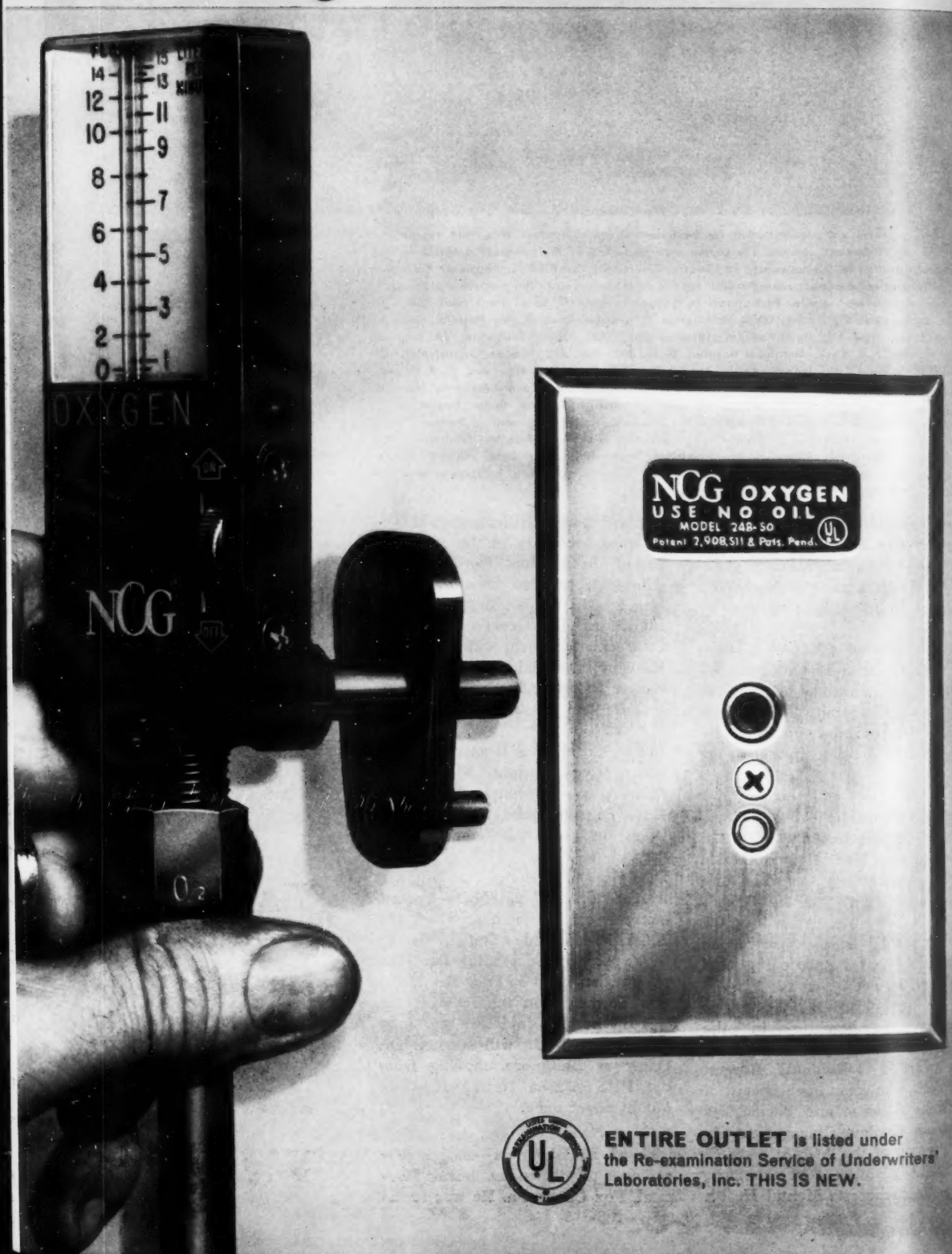
Honorary memberships in the American Hospital Association have been awarded to **Ralph W. Burger,** New York, chairman of the board of the Great Atlantic and Pacific Tea Co., **Dean Conley,** Chicago, executive director of the ACHA; **Jack R. Ewalt, M.D.,** Boston, superintendent of the Massachusetts Mental Health Center; **Harold Hillenbrand, D.D.S.,** Chicago, secretary of the American Dental Association; **Doris Gleason,** Chicago, executive director, American Association of Medical Record Librarians; **Dr. George E. Godber, C.B.,** chief medical officer, British Ministry of Health, London; and **Luther L. Terry, M.D.,** surgeon general, USPHS, Washington D. C.

Joseph Corey—has been named administrative assistant, Flower and Fifth Avenue Hospitals, New York City. For the past 15 years, Mr. Corey has been chief admitting officer.

Daniel J. Daley, M.D.—became medical officer in charge of the USPHS Hospital, Staten, Island N. Y. recently, succeeding **Dr. John N. Bowden,** who retired. Dr. Daley was formerly in charge of the USPHS hospital in Baltimore. **John F. Oesterle, M.D.,** will succeed Dr. Daley at Baltimore, moving from the PHS Alaska Native Hospital, Mount Edgecumbe.

Richard F. Gallagher—is the new assistant administrator, Jeanes Hospital, Fox Chase, Pa. He was form-

Everywhere . . .



ENTIRE OUTLET is listed under the Re-examination Service of Underwriters' Laboratories, Inc. THIS IS NEW.

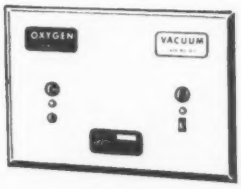
more and more

First in number... First in safety... First in satisfaction... more than 2500 hospitals enjoy NCG Piping Systems... more than 250,000 outlets in service

AND NOW, MORE ADVANTAGES WITH THE NEW 248 SERIES:

for the hospital staff

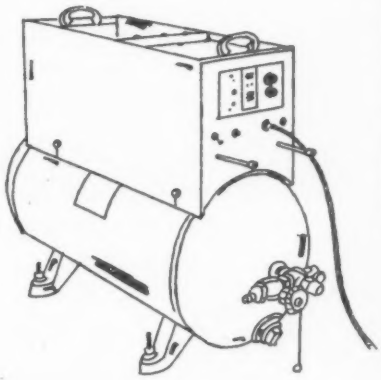
- ★ All outlets safety-keyed, latch-indexed
- ★ Adapter locks firmly into position
- ★ Self-sealing valve mechanism
- ★ One-hand operation
- ★ No wiggle of flowmeter
- ★ Completely flush wall plate
- ★ Vacuum adapter serves as own bottle holder



NCG Multiple Outlets provide optimum service and multiply savings in cost of installation. Equipment can be mounted side by side and used at the same time or independently. All outlets are keyed, preventing accidental interchange of adapters. 248 series adapters are compatible with 238 series now in use.

for the architect and engineer

- ★ Can be installed with supply line from above or below. THIS IS NEW.
- ★ Box is 2″ deep . . . compatible for 4″ wall, back to back from one drop. THIS IS NEW.
- ★ Shipped as an assembly. Cost of installation is less. Line blow-out for testing accomplished simply by turning a screw. THIS IS NEW.



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25,000 cycle test	Oxygen aging test of seals
Aging test of metal parts	Pressure test
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erly controller at the hospital, and is succeeded in that position by **Edward J. Armstrong.**

Dick Hacker—has been named administrative resident, California Hospital, Los Angeles. He attended Washington University, St. Louis, Mo.

Jim Harden—has been appointed chief accountant, Baptist Memorial Hospital, Jacksonville, Fla., succeeding **Walter Parris.**

C. Henry Hottum—assistant administrator, Methodist Hospital, Memphis, Tenn., has been named recipient of the Frederick C. Morgan Individual Achievement Award, presented annually to the outstanding hospital accountant in the nation by the American Association of Hospital Accountants.

Dr. Charles Huggins—has been named co-recipient of the Walker prize given once every five years by the Royal College of Surgeons, London, England, for cancer research during the period. Dr. Huggins is director, Ben May Laboratory for Cancer Research, University of Chicago. Sharing the prize will be **Dr. Ludwik Gross**, of the VA hospital, New York City.

Kenneth C. Johnson—has been appointed assistant administrator, Yakima Valley Memorial Hospital, Yakima, Wash. He was formerly at San Jose (Calif.) Hospital.

C. Dwayne Shoemaker—is new administrative assistant, Tampa (Fla.) General Hospital. He was formerly administrator, Carmi (Ill.) Township Hospital.

Sr. St. Alphonsus, R.H.S.J.—has been named bursar, Langlade County Memorial Hospital, Antigo, Wis. She formerly held a similar post at St. Bernard's Hospital, Chicago, where **Sr. Candee, R.H.S.J.**, will succeed her.

Harold Wetzel—is new administrator, Palm Beach General Hospital, Lake Worth, Fla. Prior to his appointment, he was hospital consultant in the hospital construction department, Florida Development Commission, Tallahassee.

Nursing Appointments

Cynthia Rector, R.N.—is the new supervisor of psychiatric nursing, Norton Memorial Infirmary, Louisville, Ky. She was formerly instructor in psychiatric nursing at the infirmary's school of nursing.

Dorothy Vanderpoel, R.N.—is the newly appointed director of in-service education for Anclote Manor Hospital, Tarpon Springs, Fla. She was formerly on the teaching faculty of St. Petersburg Junior College.

Deaths

Richard Lewisohn, M.D.—discoverer of a safe method of preserving blood with 0.2 percent sodium citrate, and a pioneer in the use of folic acid—Aug. 11.

Kenneth M. McColl, M.D.—former chief of staff of Cottage and Eastside General Hospitals, Detroit—Aug. 13.

NEW...TIME SAVING

Sierra® NYLON AUTOCLAVING BAGS

FOR EASY PACKAGE STERILIZATION

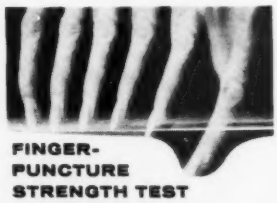
STEAM PERMEABLE/IMPERMEABLE TO BACTERIA

Re-usable Nylon Autoclaving Bags in a wide variety of convenient sizes are now available for safe, easy sterilization and storage of linens, dressings and sharp instruments. Like Sierra's Nylon Autoclavable Film, the transparent bags are 100% impermeable to bacteria, keeping contents sterile till needed. Packaged in units of 100 bags, three sides of the bag come sealed... one end open for loading. May be autoclaved to 287°F. In 12 widths and 10 lengths, ideal for most hospital packaging.

RE-USABLE • DURABLE • TRANSPARENT

NYLON AUTOCLAVABLE FILM ALSO AVAILABLE

All sizes to 25" offered in 100' dispenser-type boxes and 1,000' rolls. May be cut to desired length as needed, with same properties as the Nylon Autoclaving Bags.



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Draw your finger nail across the SIERRA Nylon Film or Bag. Will not puncture or tear. Contents are safe from puncture contamination.

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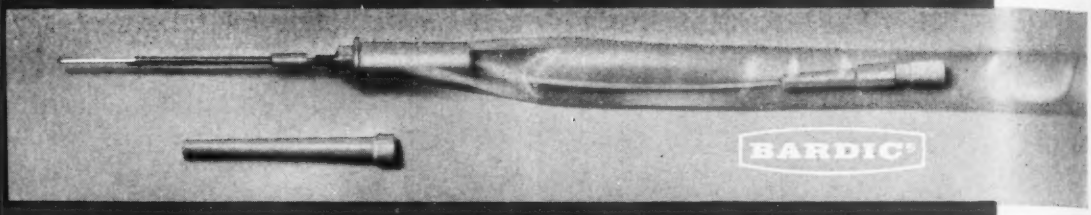
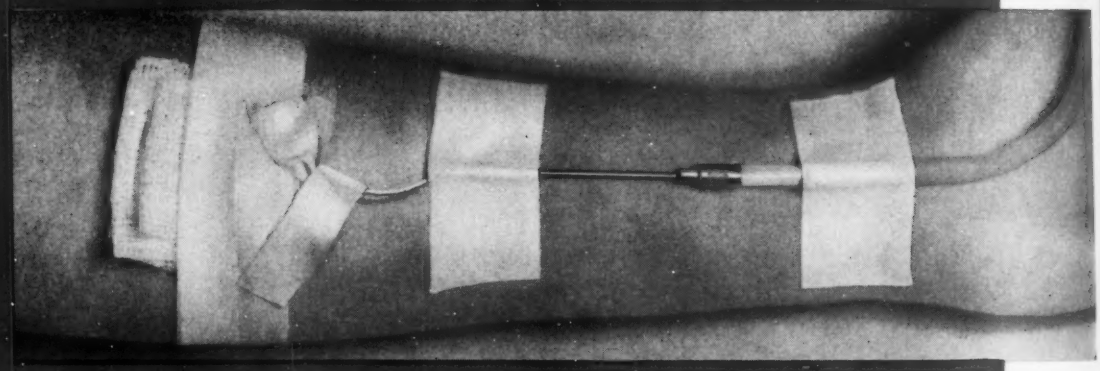


...use the Bardic® Deseret Intracath® that makes the venipuncture, places a soft, pliant catheter in the vein...



and takes the needle out of the patient!

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Hi-Fi Tapes Reveal Heart Defects

A mass screening method for finding heart defects, pioneered by the Chicago Heart Association in conjunction with three other agencies, has been verified as 91 percent accurate.

The method consists of recording children's heart sounds on hi-fidelity tapes which are later read by specially trained cardiologists who interprete the sounds.

Tested were 33,026 Chicago public elementary school children. Abnormalities were found in two children per thousand, a total of 64 children.

Abnormalities in 32 children (half of the cases discovered) were previously undetected. All of these new cases were followed up. To date, two cases have undergone corrective surgery for congenital heart defects; six cases have been placed on rheumatic fever prophylaxis to prevent recurring attacks; and several cases are pending surgical treatment.

To check the accuracy of findings, 34 children known to have heart defects were interspersed at random among the subjects. Thirty-one were detected, producing the accuracy percentage of 91.

Unique Postgraduate Courses Offered to Physicians

A new system that gives postgraduate extension courses in medicine is being offered by Loma Linda University, School of Medicine, Los Angeles. Called 'Illustrated Medical Lectures,' each course consists of a 30-minute audio tape and accompanying full-color 35 mm filmstrip.

The busy doctor who may not be able to attend as many medical conventions as he wishes, will find the medium offers the opportunity to continue his medical education. The courses bring top lecturers from the country's leading medical schools to the physician at his convenience.

As the doctor listens to the lecture, the film strip presents a series of full color slides illustrating case histories, surgical technics or pertinent pathology through the medium of photos, x-rays, medical drawing, photomicrographs, and even carefully chose cartons.

Loma Linda University is now producing three new filmstrips each month to augment their current library of 30 audiovisual lectures which include material from the fields of anesthesiology, cardiovascular diseases, dermatology, general surgery, gynecology, internal medicine, neurology, oncology, otolaryngology, public health and preventive medicine, psychiatry, radiology, socio-economic medicine, and urology.

Releases in the immediate future will include material on endocrinology and metabolic diseases, gastroenterology, occupational medicine, ophthalmology, plastic surgery, pharmacology and physical medicine. Other specialties will be added as the program progresses.

Link Calories, Cardiac Trouble

A direct correlation between caloric intake and heart disease was announced recently by three Chinese scientists. Their findings were the result of a dietary study of four ethnic groups of the Pacific Basin.

The survey indicated high caloric diets favored by Caucasians led to development of cardiovascular diseases more readily than foods normally eaten by Latin Americans, Orientals and Polynesians.

The Chinese report stated that Latin Americans were next most subject to heart disease, followed by Orientals and Polynesians of the South Pacific Islands.

Cancer Board Votes "Progress Year"

The board of directors of the American Cancer Society, which met recently in Seattle, approved two actions of national significance.

The board approved the affiliation of the Eleanor Roosevelt Cancer Foundation with the American Cancer Society, a step aimed at reducing multiplicity of organizations and appeals, and strengthening the cancer movement.

The governing body also approved a resolution to join with the National Cancer Insitute of the U. S. Public Health Service to celebrate 25 years of cancer progress in 1962. The purpose of this "Cancer Progress Year" will be to "intensify the efforts being made to persuade the public to act for its own protection, to improve the care of the cancer patient, and to step up all programs to speed the final victory over cancer."

Licenses to Practice Medicine Increase

The estimated number of new licenses to practice medicine issued in the United States in 1960 showed a slight increase for the ninth consecutive year, according to a report by the AMA.

Approximately 16,211 physicians were registered during the year, compared with 16,068 in 1959. Among these were 8,030 physicians who received their first licenses, a decline of 239 from the 8,269 issued in 1959.

The total number of licenses to practice medicine and surgery issued in 1960 was 16,102. The figure includes 7,571 licenses granted after a successful written examination, and 8,531 granted by reciprocity and endorsement of state licenses or the certificate of the National Board of Medical Examiners. Of the 16,102 licenses, California issued the largest number, 2,427. New York issued 1,572, while Florida, Illinois, Michigan, New Jersey, Ohio, Pennsylvania, Texas, and Virginia each issued more than 500.

Grant Awarded for Mumps Vaccine Research

A research grant of $107,000 has been awarded to the Department of Microbiology, Presbyterian-St. Luke's Hospital, Chicago, for development of a live-type mumps virus vaccine.

Friedrich Deinhardt, M.D., chairman of the department, has been named principal investigator on the project. Clinical consultant to Dr. Deinhadt will be Richard B. Capps, M.D., member of Presbyterian-St. Luke's attending staff.

The research team will isolate mumps viruses from human cases and propagate the virus in successive passages in chick embryos. After several passages in the embryos, the virus loses its capacity to produce the disease in humans. To obtain a vaccine, approximately 100,000 tissue cultures will be infected with mumps virus strains and evaluated at various passage levels in the chick embryos.

"We hope to develop an attenuated or 'weakened' live virus vaccine which could be administered as an oral or nasal spray," said Dr. Deinhardt. "This vaccine would provide the same protection as a person possesses having had mumps."

Films, New Literature

640. Hearing

New pamphlet, "You and Your Hearing," recently published, contains an emphatic warning to persons faced with hearing loss to consult an ear doctor before considering purchase of a hearing aid. Written by a distinguished ear specialist, the booklet points out that there are many types of hearing defects and many of them can be overcome by treatment or surgery without use of a hearing aid. Copies available for 25¢ from: Public Affairs Committee, Inc., 22 East 38th St., New York 16, N. Y.

641. Dish handling

New 8-page folder shows how to simplify, speed and save with a planned clean-dish handling system. Brochure contains photos, complete specifications for every model in the AMF Lowerator line, including units for dishes, cups, saucers, glasses and trays, as well as milk cartons, bottles. Installation photos show dispensers used in mass feeding establishments. Lowerator Div., American Machine & Foundry Co., 261 Madison Ave., New York 16, N. Y.

642. Laundry equipment

Two catalogs (D-1, D-3) featuring a complete line of laundry equipment for small, medium or large size hospital laundries are available. A wide range of sizes and capacities in washers, extractors, dryers, folders and ironers are pictured and described. The American Laundry Machinery Co., Cincinnati 12, Ohio.

643. Instruments

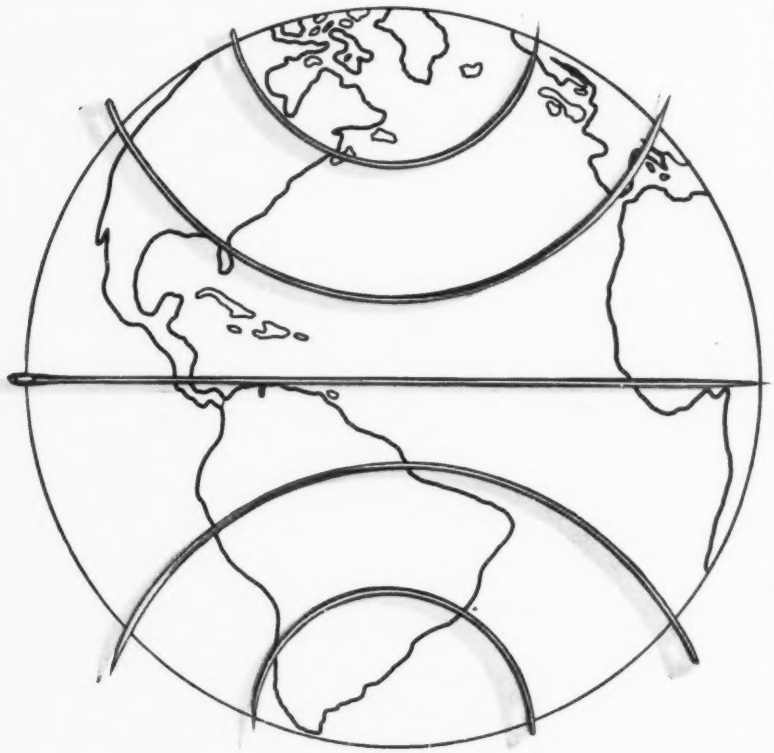
Snowden-Pencer Corp. has issued its first complete descriptive literature on the company's "Diamond-Jaw" needle holders, "Diamond-edge" scissors, and surgical Instrument Milk. The brochure is complete with pictures, specifications of all the company's line of fine surgical products. A price list is included. Snowden-Pencer Corp., P. O. Box 186, Los Gatos, Calif.

644. Insecticides

"Space Spraying of Insecticides" is a 16mm, color and sound film, running 11 minutes, which demonstrates technics of space spraying for insect control over large areas. Also shows various types of modern power spraying equipment. Available on short-term loan. Communicable Disease Center, Atlanta 22, Ga.

645. Food service

A special catalog for hospital administrators, purchasing agents, dieticians, has recently been issued by Edward Don & Co. The 94-page book features food service equipment, supplies and other needs used in hospitals, similar institutions. Illustrated catalog includes: china, glassware, flatware, tray service needs, bed linens, pillows and pads, paper goods, pots and pans, cutlery, kitchen equipment, other requirements in this field. Edward Don & Co., 2201 S. LaSalle St., Chicago 8.



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Have The Keentorr Finish – the smoother finish with the sharper cutting edge obtained with new manufacturing methods.

Are Available for Immediate Delivery from stock.

Are Made in America of the finest stainless steel – to quality standards unmatched throughout the world.

Are Packaged in See-thru Plastic Envelopes that permit quick and easy identification and insure maximum needle protection.

WRITE FOR NEW TORRINGTON SURGEONS NEEDLE CATALOGUE #60
Lists all types and includes conversion chart for your ordering convenience.

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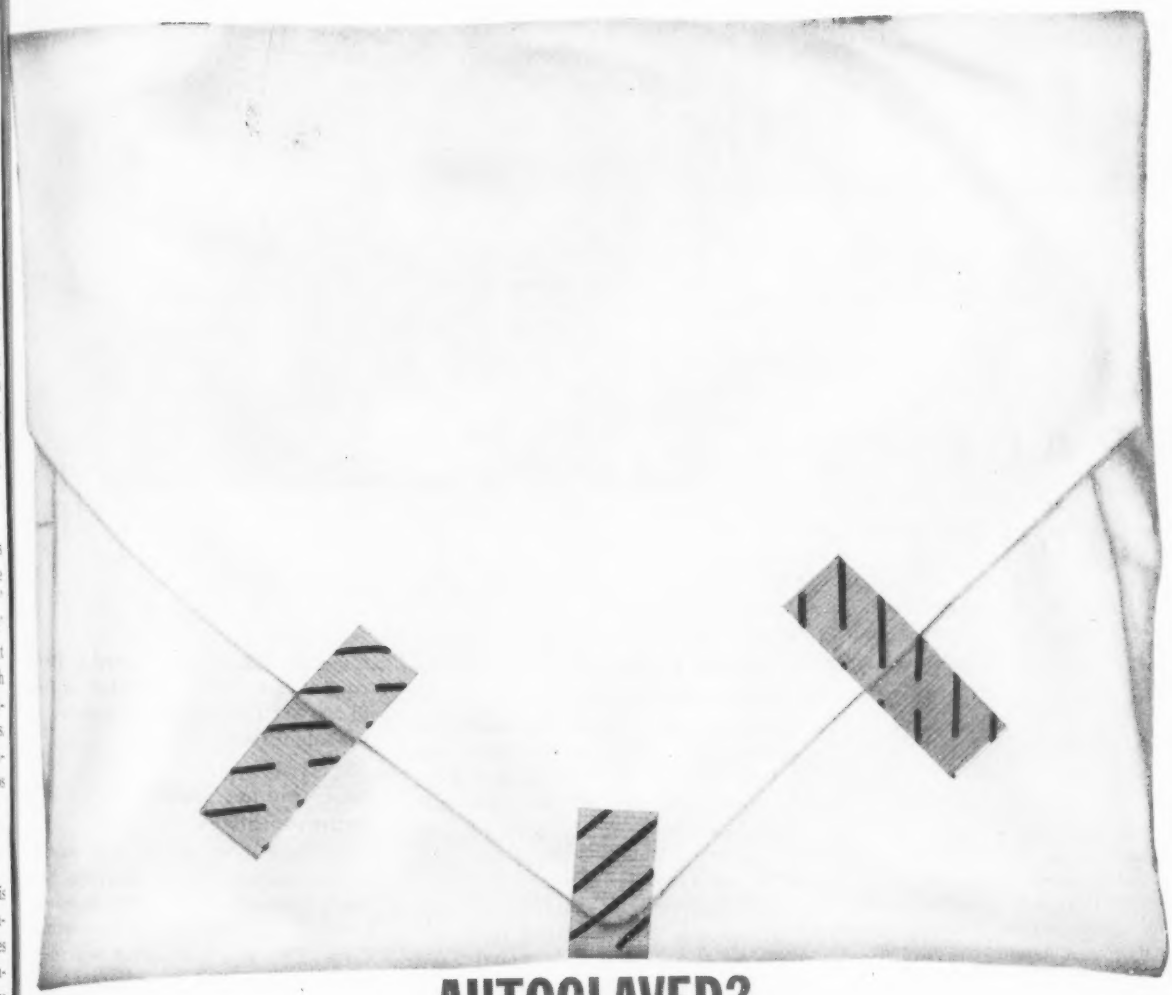

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There is no doubt when you seal bundles and containers with "SCOTCH" Brand Autoclave Tape No. 222. Dark lines appear on the tape only after exposure to correct levels of heat and moisture in an autoclave. Any other heat and/or moisture exposure cannot activate the tape. "SCOTCH" Autoclave Tape holds fast before, during and after autoclaving . . . applies easily . . . sticks at a touch to paper, cloth, glass, metal . . . leaves no residue. "SCOTCH" Autoclave Tape is faster to use than pins, string, cotton plugs, and may be easily marked with pen, pencil or typewriter.

New! For gas sterilizers!

Now, secure sealing and positive identification of gas sterilized bundles are made possible with new "SCOTCH"Brand Ethylene Oxide Sterilizer Tape No. 224. This tape offers the same assurance of proper exposure that "SCOTCH" Brand Tape No. 222 does in steam autoclaves. For complete details, contact your surgical supply dealer, or write 3M Company, St. Paul 6, Minnesota.

(Note: Each of these tapes is designed for a specific purpose. The Autoclave Tape will not function in a gas sterilizer; nor will the Ethylene Oxide Tape function in a steam autoclave. Nothing on the outside of an autoclaved or gas-sterilized item, of course, can guarantee sterility of contents.)

"SCOTCH"® BRAND HOSPITAL AUTOCLAVE TAPE NO. 222

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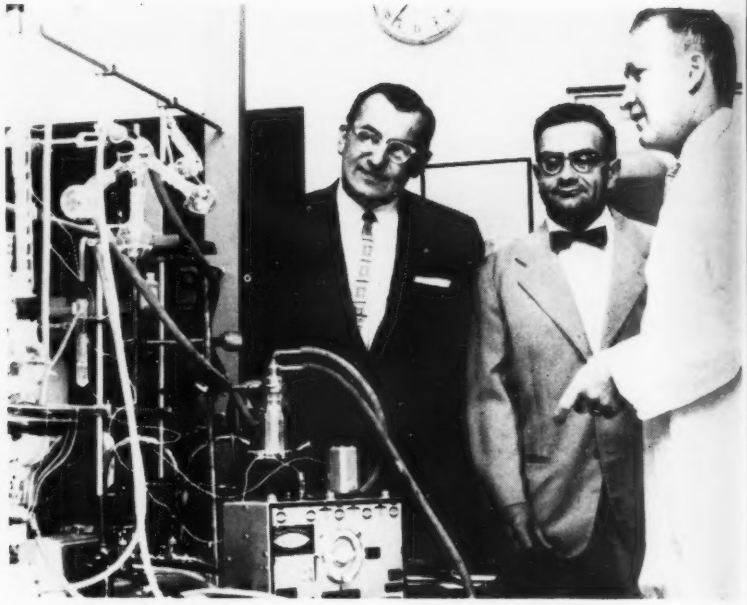

Viewing operation of the Burd-Watcher reaction monitor at Lakeside Laboratories' new research center are (l. to r.) Raymond D. Hetterick, president; Dr. John H. Biel, director of laboratories; and Dr. Claude I. Judd, chief of medicinal chemistry division.

TRADE TOPICS . .

Among those participating in the ground-breaking ceremonies for the new plant of Edward Weck & Co. in Long Island City were John P. Clancy (l.), president of the Borough of Queens; and Frank W. Wilmarth, president of Weck.

Abbott Seeks Japanese Outlet

Application to establish a joint radioisotope enterprise in Japan has been filed with the Japanese government by the Abbott Laboratories subsidiary in Switzerland and Dainippon Pharmaceutical Co., Ltd., Osaka.

If approval is granted, the new joint company, Dainabot Radioisotope Laboratories, Ltd., would build a processing plant in Matsudo, a Tokyo suburb. This would enable Japan to produce its first domestic supplies of radio-pharmaceuticals for diagnosis and treatment. The isotopes must now be imported from the U.S. and Great Britain.

Bauer & Black Builds in East, Midwest

Kendall Company, Bauer & Black Division has recently completed a 22,000 sq. ft. addition to its Englewood, N. J. warehousing and service facilities. The new addition more than doubles warehouse space and enables servicing eastern seaboard customers from one location.

A new research center in the midwest is also planned by the firm. Laboratories occupying approximately 40,000 sq. ft. will be housed in a new building to be erected at Barrington, Ill., at an estimated cost of $1,500,000. Completion is expected in the fall of 1962.

NCG Names Dealer Representatives.

Appointment of seven new dealer representatives in six districts has been announced by the National Cylinder Gas Division of Chemetron Corp. The representatives will develop dealer and distributor sales at their respective locations.

Named were **G. P. Zielke** and **R. J. Eisler,** Chicago district; **N. P. D'Alessandro, Jr.,** Boston district; **H. B. Stormer,** Buffalo district; **F. J. Gordon,** Cleveland district; **K. W. Clemen,** Philadelphia district; and **R. C. Weiss,** St. Paul district.

Armour Plans Food Research Lab

A food research laboratory and pilot plant is planned by Armour and Co., in Oak Brook, Ill. Research to be conducted in the facility will range from fundamental investigation of the chemistry of proteins and fats to pilot plant studies of food manufacturing processes.

The planned two-story building will have 53,000 sq. ft. of floor space.

(Continued on page 122)

Safety First ... and Last!

WITH **TSI** (TIME STERILE INDICATOR) **LABELS**

shows **STERILE** after sterilizing!

BEFORE AUTOCLAVING

SIZE
GLOVES 7½

Only TIME TSI Tapes and Labels give you this exclusive indication that an item has been exposed to the full sterilization cycle. The word "STERILE" appears only after it has been exposed for 15 minutes to the autoclave cycle at 250°. No accidental activation possible. This clean white tape can be used on any kind of wrap and leaves no dirty residue. The adhesive never vulcanizes.

AFTER AUTOCLAVING

STERILE SIZE
GLOVES 7½

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packaged
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Johnson & Johnson

pre-wrapped, patient-ready dressings offer the same convenience

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J-D. HEAVY DRESSING PAK
A PRE-PACKAGED DRESSING FOR COLOSTOMIES, ILEOSTOMIES, SUPRA-PUBIC CYSTOSTOMIES, GALL BLADDER OPERATIONS, AS WELL AS OTHER TYPES OF SURGICAL PROCEDURES INVOLVING HEAVY DRAINAGE.
GUARANTEED STERILE
J&J
PATIENT-READY
TRADEMARK
Johnson & Johnson
SEE OTHER SIDE FOR SUGGESTED TECHNIQUE
STERILITY GUARANTEED UNLESS WRAPPER IS PUNCTURED

Specify the most trusted name in sterile dressings.

The three pilot plants and research bakery to be included will be provided with test-size duplicates of the latest in food processing equipment.

Ohio Chemical Buys Armstrong Line

The complete product line of the Gordon Armstrong Co., Inc. has been purchased by Ohio Chemical & Surgical Equipment Co., a division of Air Reduction Co., Inc. Addition of the Armstrong incubators to the existing Ohio line of medical gases and related hospital equipment will broaden Ohio's services in the hospital and medical market.

Grant Co. Buys Pressure Pad

The R. D. Grant Co. has announced acquisition of the Airmass Alternating pressure pad from the Rand Development Corp. The transaction is accompanied by a new sales policy which will facilitate purchase of the pad by hospitals and nursing homes.

DuBois Announces Shifts, Names Production Manager

John T. Salter has been appointed production manager of all manufacturing facilities of DuBois Chemicals, Inc. He was formerly branch manager of the firm's Dallas plant. In new capacity, Mr. Salter will be responsible for activities at plants in Cincinnati, Los Angeles, Dallas, and East Rutherford, N. J.

Elmer C. Korte has been appointed chief chemist at the New Jersey location. He had been serving as chief chemist of the main service laboratory.

Sherman H. Palmer, chemist at East Rutherford, is now branch manager of the Dallas Plant.

News Briefs

The creation of two new executive positions has been announced by American Hospital Supply Corp. **John A. Janss** has been promoted to the new post of director of marketing for the Scientific Products Division of AHSC. **James Sullivan** succeeds him as the division's merchandising manager.

Brien Laing, formerly assistant to the president of the Hospital Supply Division, has been named sales training director for the division.

AHSC has also announced the appointment of **Ralph V. Seaman, Jr.** as corporate personnel director, and **Harold W. Krueger** as wage and salary administrator. **Donald P. Strohm** has been named manager of Minneapolis regional sales and distribution center of the Scientific Products Division.

George A. Nuffer—has been appointed sales representative by Carolina Absorbent Cotton Co. He will serve the hospital and institutional trade in upper New York state. He was formerly a sales representative and field manager for Merck, Sharp and Dohme.

Clifton R. Scarborough—has been named to the newly created position of vice president in charge of sales by the S. Gumpert Co., Inc. In the new post, much of his time

six sizes
a thousand and one uses

The wide range of sizes of 'VASELINE' STERILE PETROLATUM GAUZE U.S.P. gives it a thousand and one uses in the hospital and the office treatment room. As a pressure dressing in surgery . . . an occlusive dressing in burns . . . an emollient dressing on dry and nonacute skin lesions . . . a packing in nose, eye, and ear procedures . . . here is a dressing convenient to use and of guaranteed, sealed-in sterility.

Provided in a Range of Sizes for Every Indicated Need

in disposable plastic tubes • 1/2" x 72" selvage-edged packing
in heat-sealed foil envelopes • 1" x 36" strip . . . 3" x 3" pad, opening to 3" x 9" strip . . . 3" x 18" strip . . . 3" x 36" strip . . . 6" x 36" strip

'Vaseline' Sterile Petrolatum Gauze U.S.P.

Professional Products Division • Chesebrough-Pond's Inc., New York 17, N. Y.

'Vaseline' is a registered trademark of Chesebrough-Pond's Inc.

The new 764 Thermotic Drainage Pump featuring a convenient, compact flushing attachment, speeds and simplifies flushing and drainage techniques.

Designed to deliver 35 to 50cc of water or saline solution at each stroke of the manually operated plunger, the new Gomco-developed attachment rinses drainage tubes clean and clear *without* the use of hand syringes...*without* disconnecting nasal tubes from Thermotic Drainage pump.

Dependable, attention-free Drainage Pump then gently and automatically withdraws the flushing solution to complete the cycle.

Hospital tested and approved, Gomco No. 764 Thermotic Drainage units are designed for procedures requiring suction as mild as 120mm or 90mm mercury. Baked Lumitone finish, Formica tops, chrome-plated fittings, and Aerovent Overflow Protection are standard equipment.

Ask your Gomco dealer for an office, clinic, or hospital demonstration.

The flushing attachment cannot be added to other models of Thermotic Drainage Pump.

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will be devoted to the institutional division, both in increasing sales and exploring new markets.

Mr. Scarborough has been sales manager of the firm's bakery division since 1959. Prior to that time he operated an industrial food brokerage firm in Charlotte, N. C.

Victory Metal Mfg. Corp. has named **J. Desmond Phelan,** general sales manager, to succeed **C. Jesse Popky** as vice president in charge of sales. **Dom Parry** and **Robert Raymond** have been named assistant sales managers.

John J. Cashin has been appointed district sales manager for the northern California and northern Nevada area, and **Bart N. Hodak** is the new sales engineer for southern California, southern Nevada, and Arizona.

Eugene A. DeFelice, M.D.—has been named assistant director of clinical research of Warner-Lambert Research Institute. He formerly practiced medicine as an internist in North Miami, Fla. He also served as a research fellow in the department of pharmacology of Boston University.

The American Lace Paper Co. has announced **Sog Panter** as western division sales manager. He will be responsible for the present sales force in 11 western states, and will also function as national bulk products manager for the American line of institutional and industrial paper products.

Kendall Company, Bauer & Black Division, has announced the appointment of **Stanley M. Boyle** to the position of manager of suture sales. Mr. Boyle joined the Kendall firm in 1947 as a salesman in the southern hospital district, and has since held several positions with the company. Until his recent appointment, he had held the post of Great Lakes hospital district manager.

William C. O'Brien has joined the Ottawa Chemical Co. as sales manager. He will be responsible for the marketing of the firm's products in both domestic and foreign markets.

Mr. O'Brien has held varied general managerial and sales posts with Visual Electronics, Inc., Allen B. DuMont Laboratories, and with his own firm.

Robert P. Jones—New England division manager of Oakite Products, Inc., since 1954, has been assigned to the firm's New York headquar-

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This new concept of closed wound suction for all average or greater size surgical wounds promotes healing—patient comfort—and early ambulation. Reduces (often eliminates) surface drainage. Reduces need for changing wound dressings. Eliminates wound swelling (important under casts). Painless to patient and reduces post-operative pain.

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*Marlex is the trademark of the amazingly strong plastic produced by the famous Phillips Chemical Company Research Laboratories — and developed exclusively for IPCO into the ideal hospital waste liner, Linex. Its strength is truly amazing! (See for yourself — just try to tear it.) And — it saves you time and labor. Linex is perfect wherever sealing off wastes simply is indicated — while still utilizing standard, convenient waste disposal containers.

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ters. He will do staff work for the firm, and report directly to the president, John A. Carter. Succeeding him in the New England post will be **Roger R. Heroux,** formerly the company's representative in Springfield, Mass.

Walther P. Ehrhardt—has been appointed field director in charge of Schuco International division of Schueler & Co. Originally from Hamburg, Germany, he has spent many years in trade throughout the world, centering his activities particularly in Latin America. He recently completed a survey of all major markets in Latin America, and is now receiving additional training and orientation in American factories.

Robert A. Hanright—has been named director of marketing for the newly-formed ethical pharmaceutical subsidiary of Plough Laboratories, Inc. His responsibilities will include all phases of sales, advertising, and promotion of the company's group of pharmaceutical prescription specialties.

Mr. Hanright will be assisted by **Don Ramier,** former member of the concern's industrial relations staff.

Perry B. Greever—has been elected vice president and general manager of Gladieux Corp., a division of ABC Vending Corp. He will be responsible for over-all direction of Gladieux's food service and vending operations. He was formerly general manager.

Franklin C. Sexton, Sr.—vice-president of John Sexton & Co. until his retirement in 1959, died July 14 in Chicago.

In 1910 he joined the firm founded by his father, and served successively as coffee buyer, secretary, and vice president. He was widely known in the restaurant, hotel, school, and hospital feeding fields.

The election of Irving Mills as a vice president of Cenco Instruments Corp. has been announced by the firm.

Mr. Mills is also general manager of Mills Hospital Supply Co., which recently merged with Cenco.

W. P. White, Jr.—has been appointed executive vice president of Appleton Electric Co. He was formerly associated with the Continental Can Co. and the White Cap Co.

Lab-Tek Plastics Co. has announced the appointment of **Lou Brumm** to the newly created position of sales director. He formerly held the position of sales manager.

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References: 1. Sadove, M. S., and Wessinger, O. S.: J. Internat. Coll. Surgeons 34:573, Nov., 1960. 2. Erickson, J. C., III, and Hricko, M. J.: Guthrie Clin. Bull. 29:45, 1959. 3. Gordon, R. A., Kerr, J. H., and Taylor, Russell: Canad. Anaesth. Soc. J. 7:290, July, 1960. 4. Sadove, M. S.: New Physician 9:39, Sept., 1960. 5. Young, J. A.: Anesth. & Analg. 39:491, Sept.-Oct., 1960.

*If desired, epinephrine may be used in infiltration anesthesia for hemostasis.

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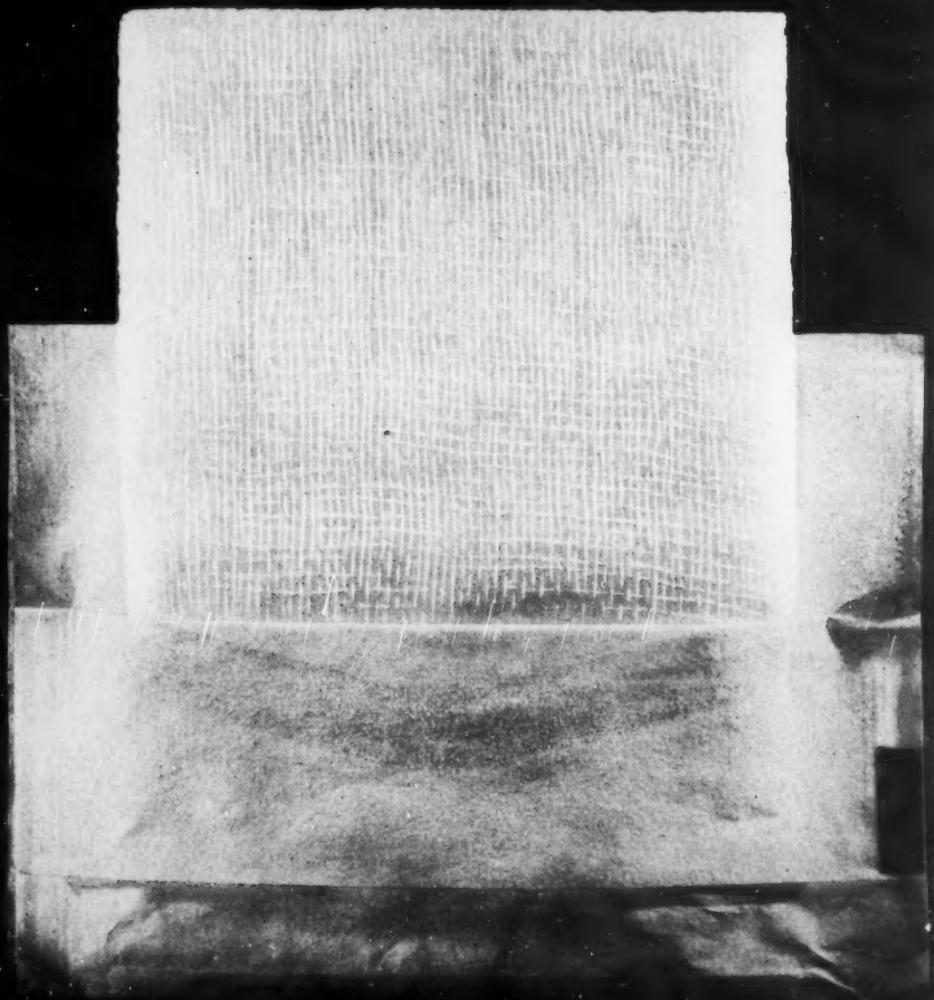

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